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Journal of the AMERICAN MEDICAL WOMEN'S ASSOCIATION

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1. Kistner, R. W.: Conservative Treatment of Endometriosis, Postgrad. Med. 24:505 (Nov.) 1958. 2. Southam, A. L.: Symposium on Enovid: Clinical Application of Enovid and Other Progestational Agents in Control of Menstrual Disorders, Chicago, Searle Research Laboratories, 1959, pp. 11-14. 3. Roland, M.: Effects of Norethynodrel on the Human Endometrium, Ann. New York Acad. Sc. 71:638 (July 30) 1958. 4. Kupperman, H. S., and Epstein, J. A.: A Symposium on 19-Nor Progestational Steroids: Gonadotropic-Inhibiting and Uterotropic Effects of Enovid, Chicago, Searle Research Laboratories, 1957, pp. 32-45. 5. Weinberg, C. H.: Symposium on Enovid: Enovid for Relief of Dysmenorrhea and Control of Dysfunctional Bleeding and Endometriosis, Chicago, Searle Research Laboratories, 1959, pp. 19-24. 6. Greenblatt, R. B.: Symposium on Enovid: Progesterone and Progestins: Their Limitations and Comparative Values, Chicago, Searle Research Laboratories, 1959, pp. 4-10.

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References: 1. J. J. McDonough and N. Mulla, to be published. 2. Reports on file, Roche Laboratories. 3. R. C. V. Robinson and L. E. Harmon, *Antibiotics Annual 1958-1959*, New York, Medical Encyclopedia, Inc., 1959.

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Volume 15 | January, 1960 | Number 1

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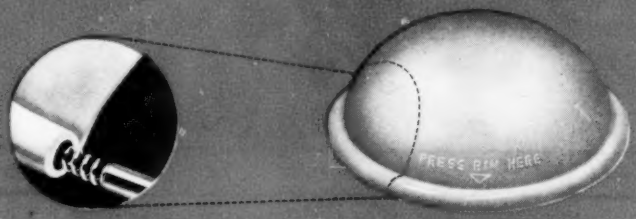

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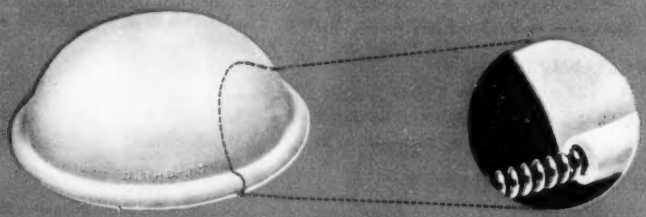

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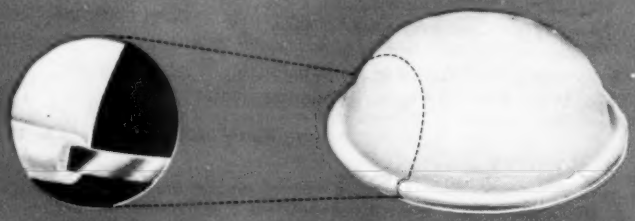

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"Little mother, just

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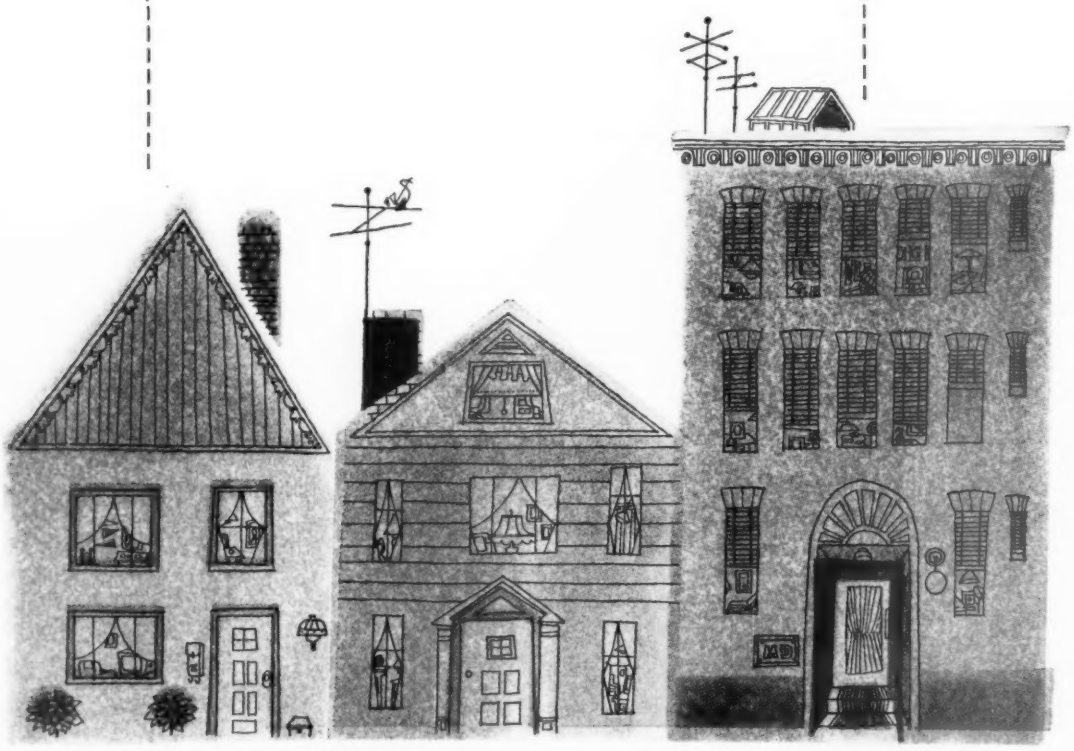
tablet stops morning sickness (you take it at bedtime)"



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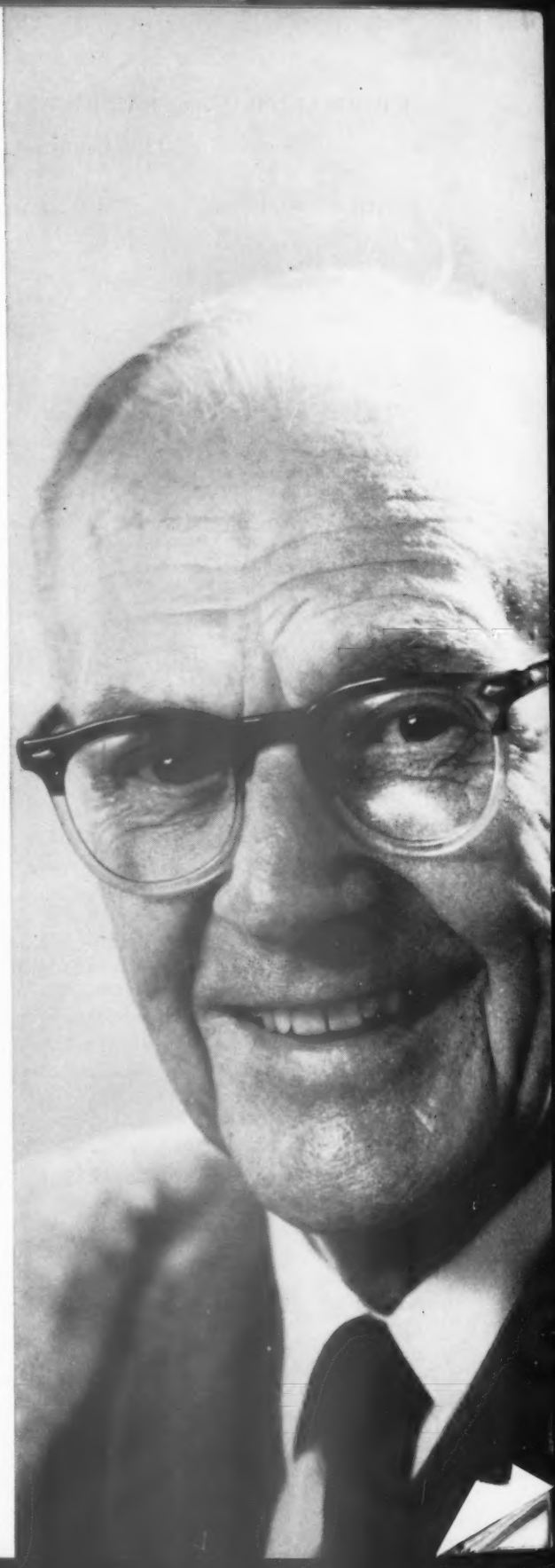

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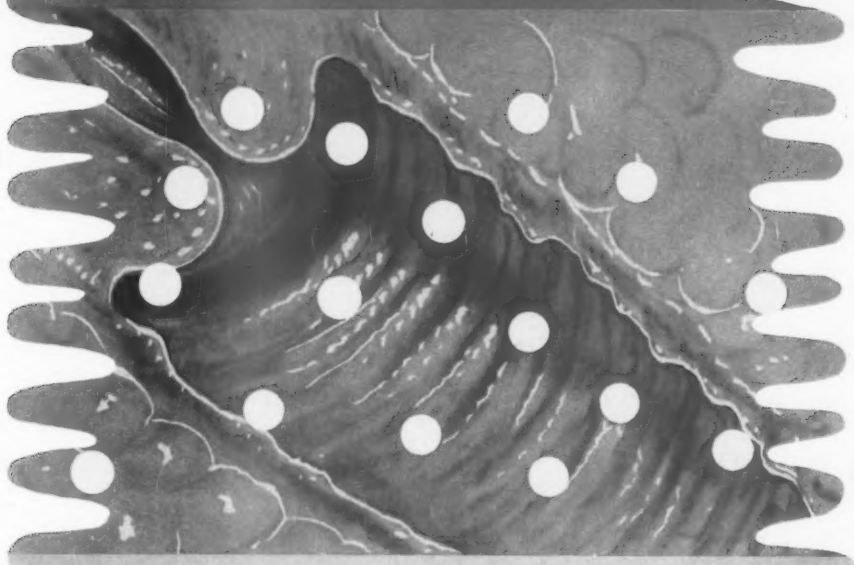

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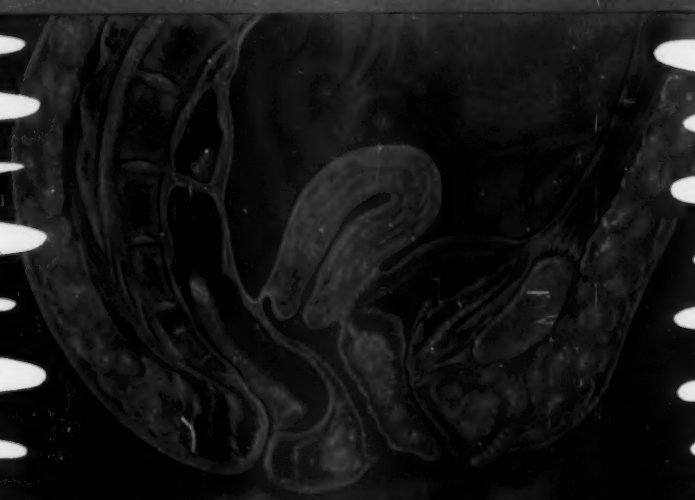

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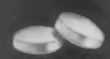

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Emery, J. E.: Am. J. Obst. 77:155, 1959

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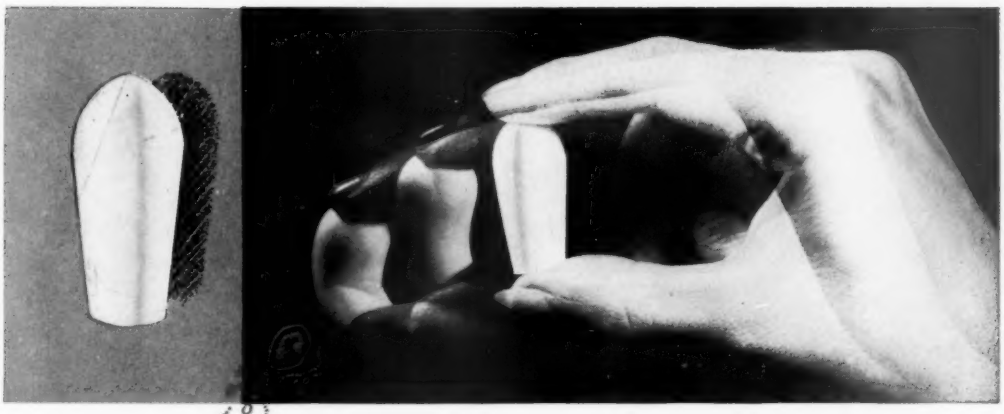

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1. Johnson, J. F.: Paper presented at Symposium on Blood, Wayne State University, Detroit, Michigan, Jan. 18, 1957; cited in M. Science 1:33 (Mar. 25) 1957; Proc. Soc. Exper. Biol. & Med. 94:92 (Jan.) 1957. 2. Published and unpublished case reports, Ayerst Laboratories. 3. Rigg, J. P.: Digest Ophth. & Otolaryng. 20:28 (Nov.) 1957. 4. Rigual, R.: Ibid., p. 3. 5. Servoss, H. M., and Shapiro, F.: Ibid., p. 10. 6. Menger, H. C.: J.A.M.A. 159:546 (Oct. 8) 1955.

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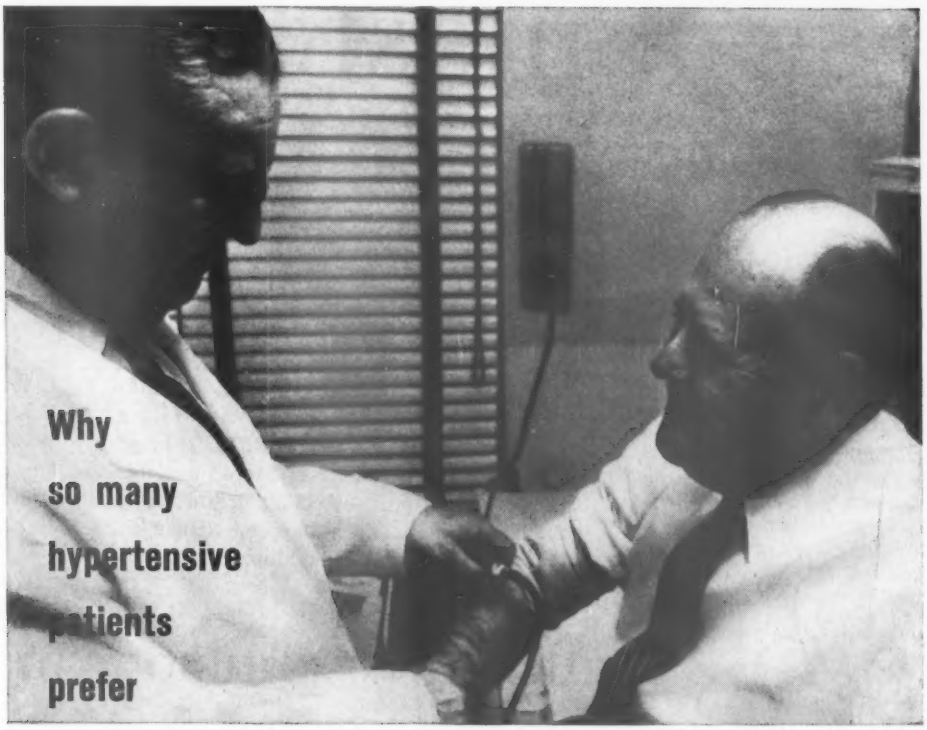
(Continued on page 36)



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*Herrmann, G. R., Vogelpohl, E. B., Hejtmancik, M. R., and Wright, J. C.: J.A.M.A. 169:1609 (April 4) 1959.

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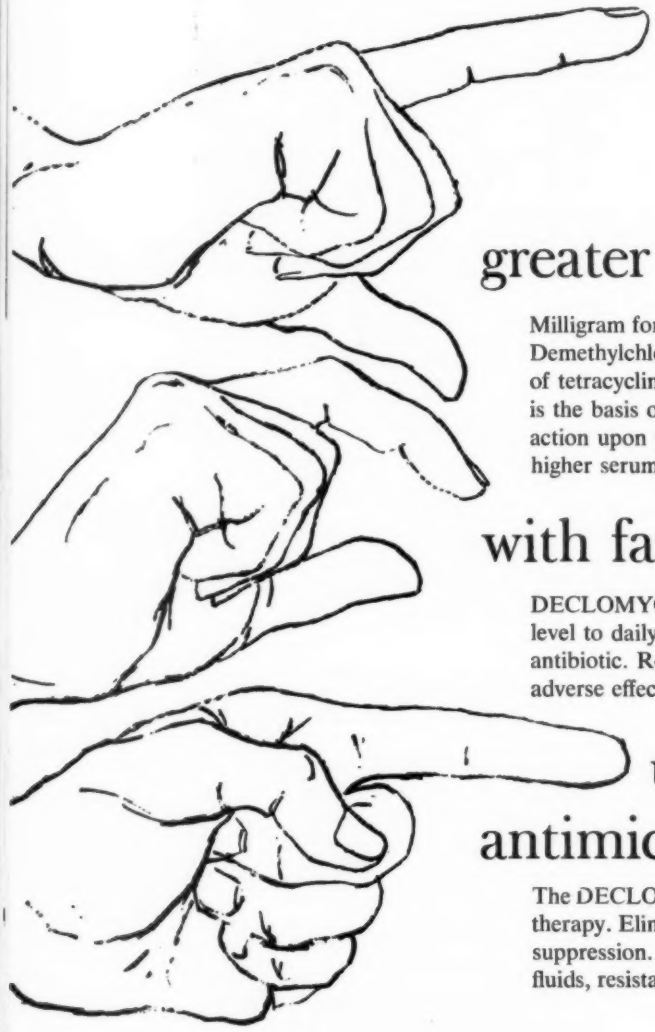

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*Hirsch, H. A., and Finland, M.: *New England J. Med.* 260:1099 (May 28) 1959.

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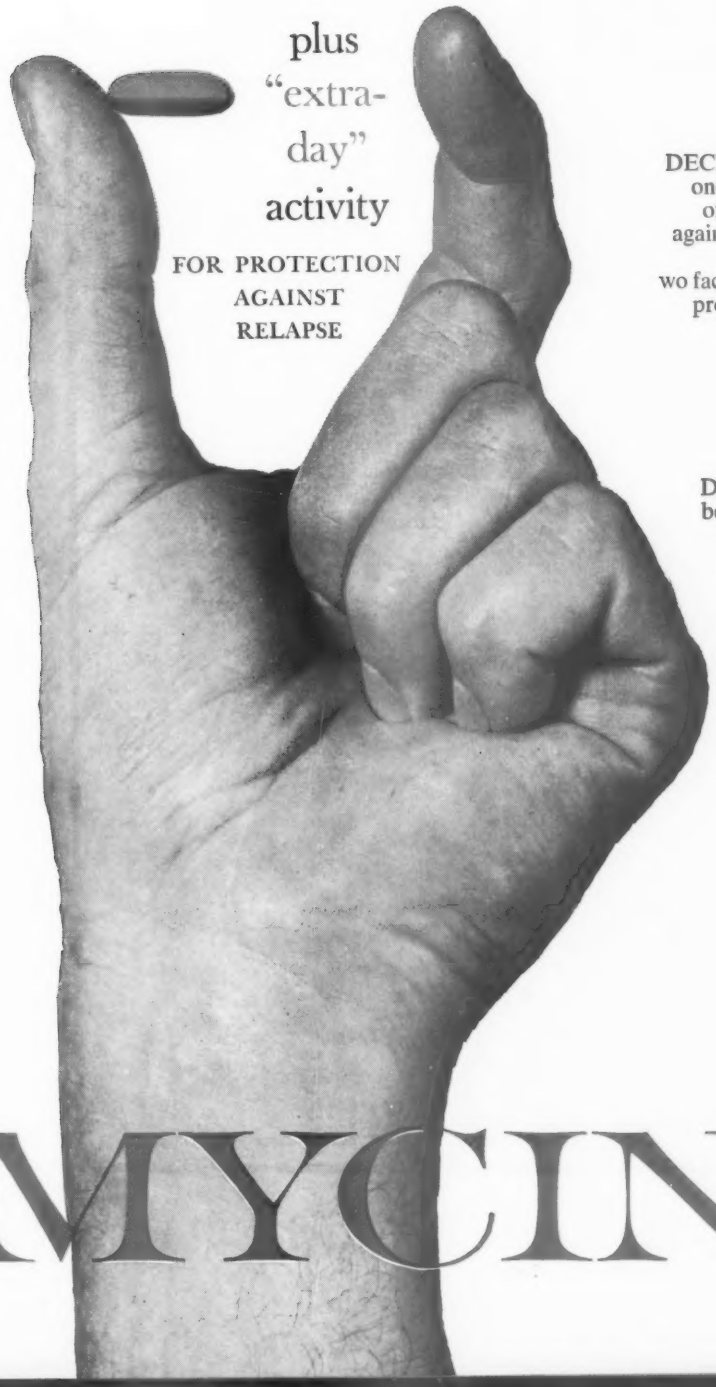

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"... large intermittent dose[s] of [nitrogen mustard and other drug] therapy could be given without the associated nausea and vomiting that we had seen before."[7]

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no sedative properties
no tranquilizer side effects

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Dosage: Adults — 1 or 2 capsules, orally, 2 cc intramuscularly, q.i.d. or 1 suppository, q.i.d. For children's dosage, consult literature.

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References: **1.** W. Schallek, G. A. Heise, E. F. Keith and R. E. Bagdon, *J. Pharmacol. & Exper. Therap.*, *126*:270, 1959. **2.** W. B. Abrams, I. Roseff, J. Kaufman, L. Goldman and A. Bernstein, to be published. **3.** I. Roseff, W. B. Abrams, J. Kaufman, L. Goldman and A. Bernstein, *J. Newark Beth Israel Hosp.*, *9*:189, 1958. **4.** O. C. Brandman, paper read at Colloquium on the Pharmacological and Clinical Aspects of Tigan, New York City, May 15, 1959. **5.** J. A. Lucinian, *ibid.* **6.** D. W. Molander, *ibid.* **7.** B. I. Shnider, *ibid.* **8.** W. S. Derrick, *ibid.* **9.** B. Wolfson and F. F. Foldes, *ibid.* **10.** L. McLaughlin, *ibid.* **11.** Reports on file, Roche Laboratories. **12.** Personal communications. **13.** W. K. Gauthier, Discussant at Colloquium on the Pharmacological and Clinical Aspects of Tigan, New York City, May 15, 1959. **14.** H. E. Davis, *ibid.*

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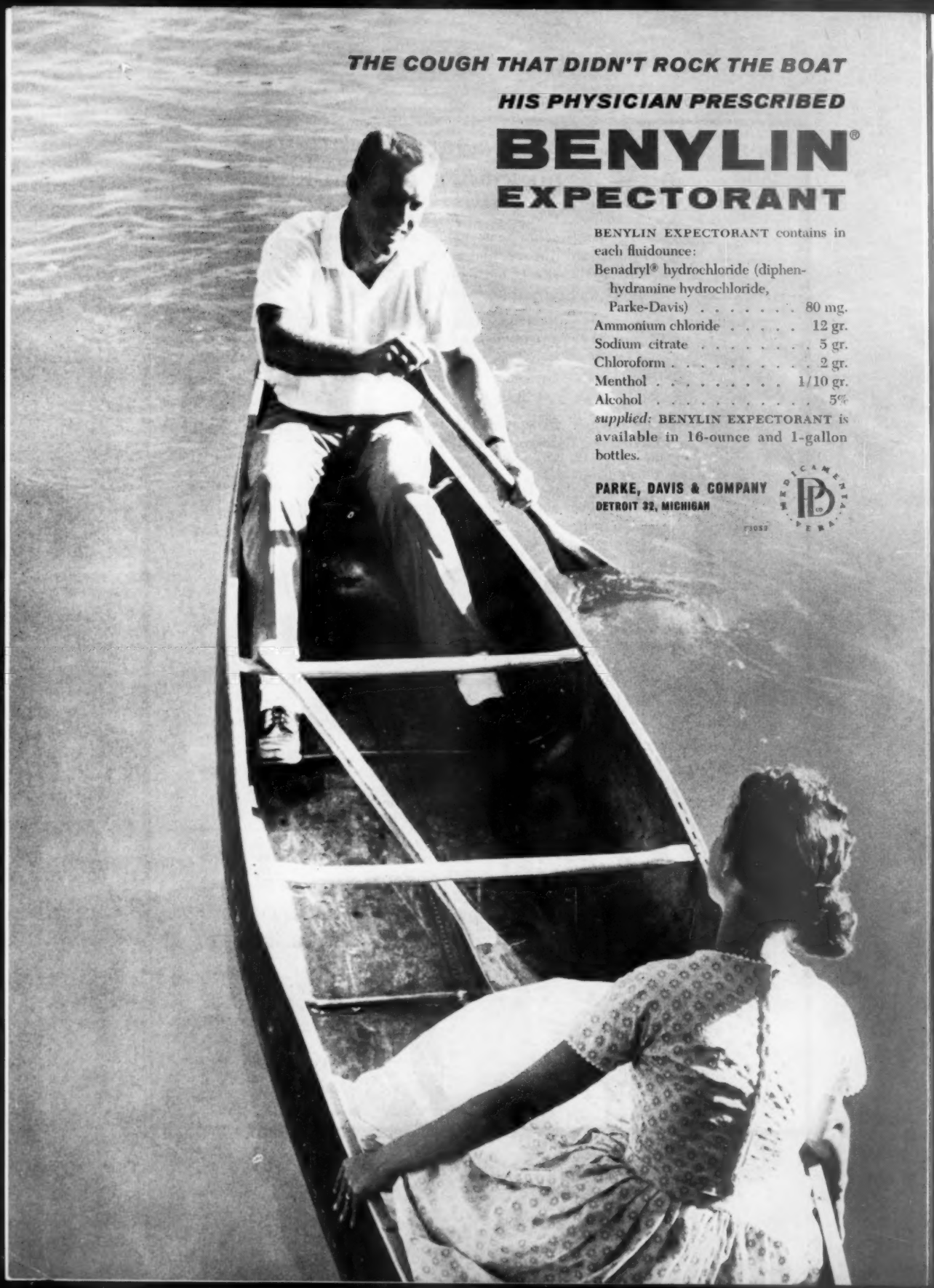
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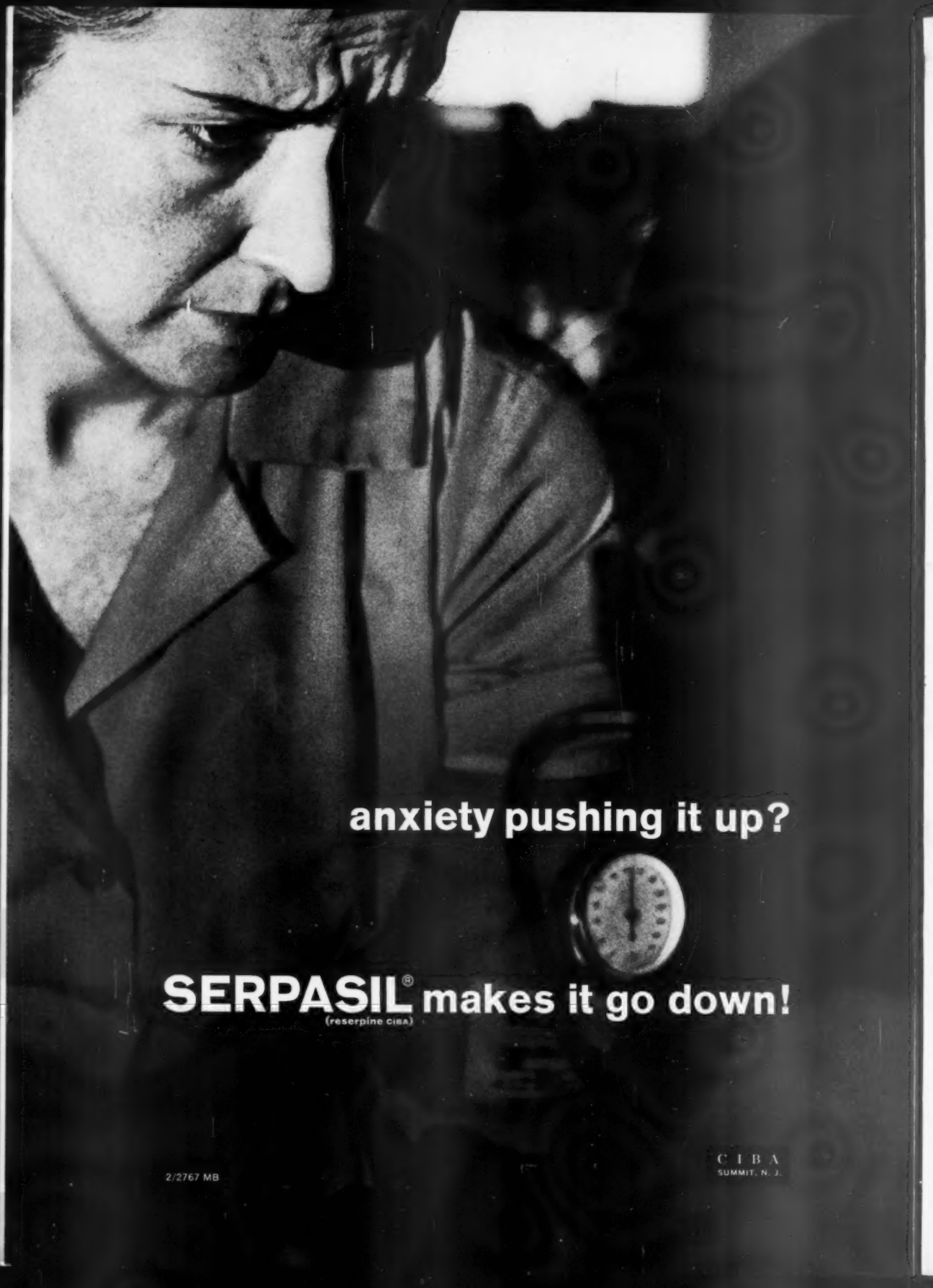
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1. Franklin, M., et al.: Chelate Iron Therapy, J. A. M. A. 166:1685, 1958.
2. A. M. A. Council on Drugs: New and Nonofficial Drugs, J. A. M. A. 171:891, 1959.
3. A. M. A. Committee on Toxicology: Accidental Iron Poisoning in Children J. A. M. A. 170:676, 1959

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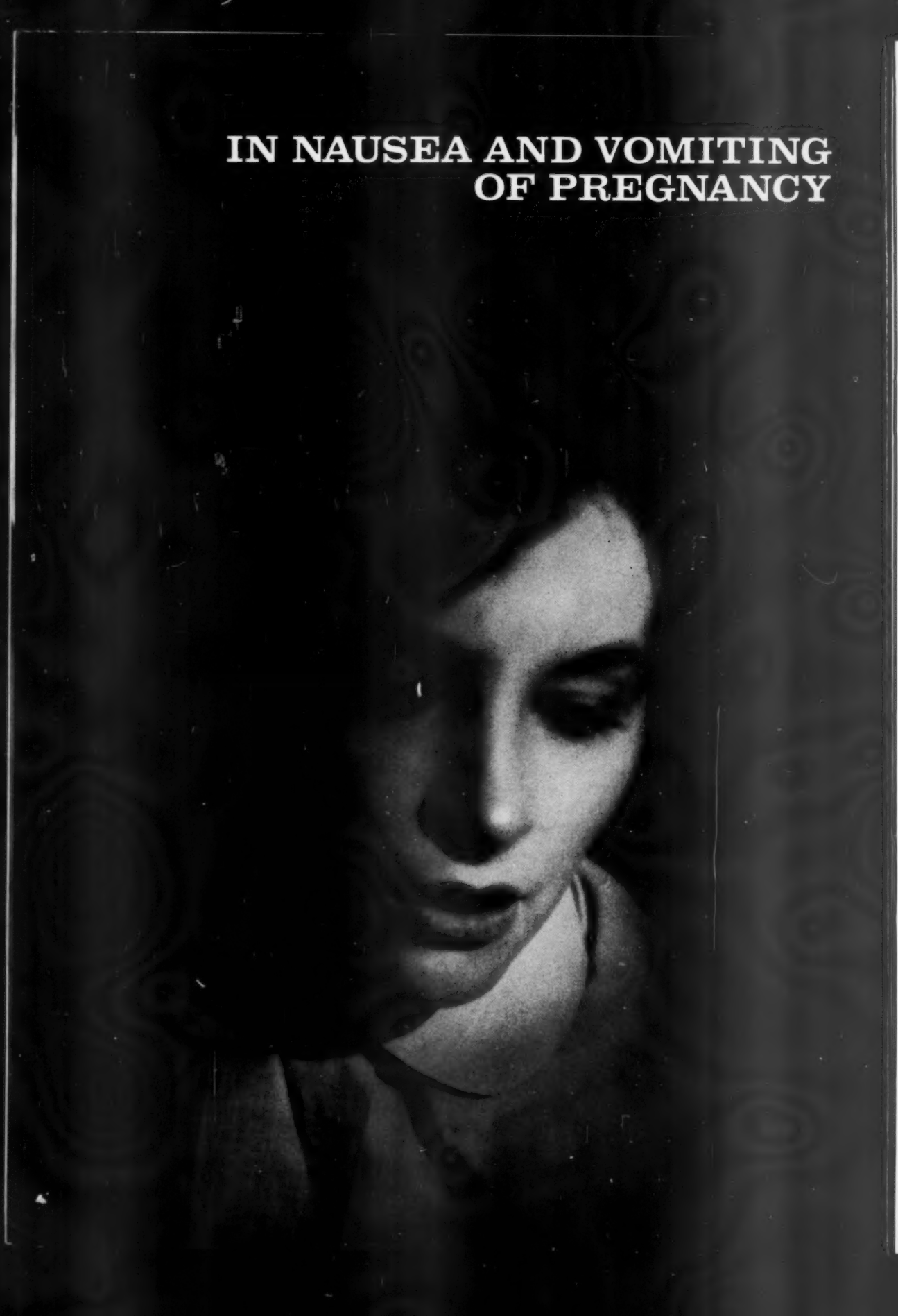

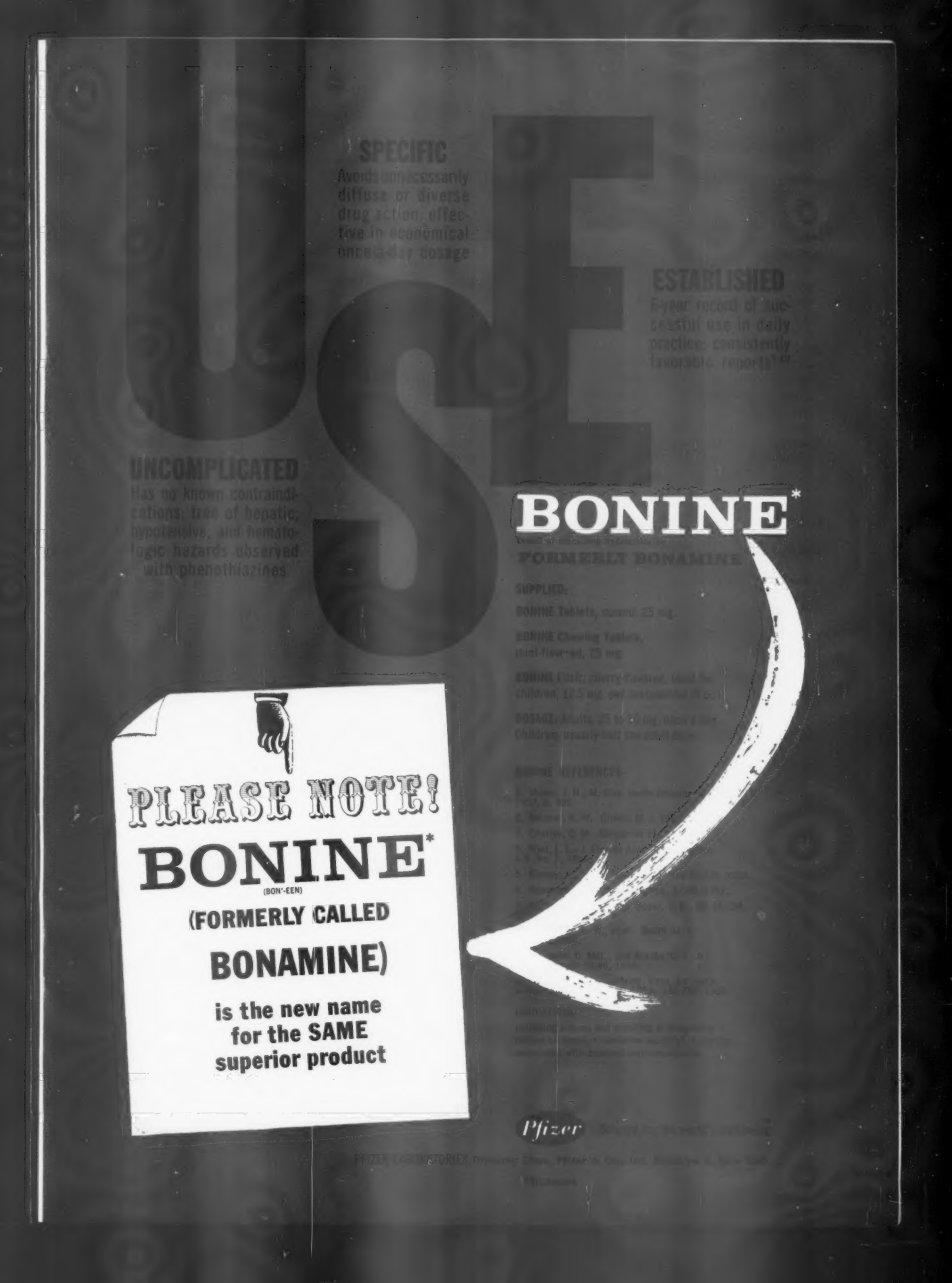
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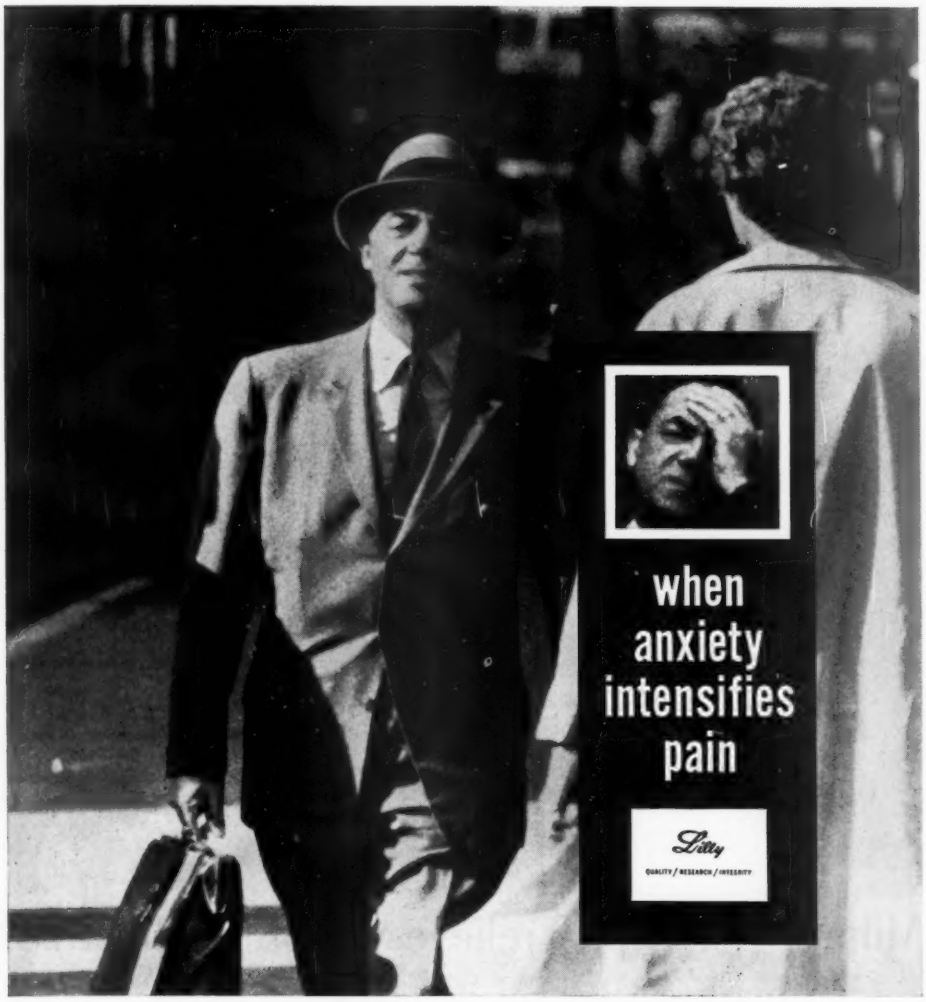

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Growth of Mammalian Cells in Vitro

Julia B. Mackenzie, Sc.D.

In 1907 Ross Harrison published his observations on the cultivation of nerve fibers outside the animal body. He placed the neuroblast of the frog in a hanging drop of clotted lymph and observed growth of the nerve axone.[1] This experiment was the first successful animal tissue, or cell, culture. Within the past 50 years the growth and cultivation of animal cells in vitro has developed into a valuable tool of research used in many scientific disciplines such as embryology, genetics, biochemistry, virology, pathology, and pharmacology. Many investigators have made basic contributions to the technique of cultivating cells in vitro. Prominent among them have been Carrel, Fischer, the Lewises, the Geys, Parker, and Earle.

Much of the early work in tissue culture consisted of imbedding explants from various tissues in plasma clots and observing the cells that grew out from the periphery. After a suitable time the explant was cut into bits and transferred to new culture flasks. With this technique chick heart muscle was kept alive for years, and cells, usually of fibroblast morphology, were grown from many normal and pathological tissues; however, this procedure had serious limitations. Quantitative work was difficult, for, with the explant procedure, cell numbers and their rate of division could not be measured. The origin of the growing cells from within the explant was obscure and the center might be dying while the periphery was growing. The use of plasma clots made the quantitative transfer of cells difficult. The precise evaluation of nutritional requirements, establishment of the optimal concentrations of extracellular ions, and so on were impossible.

The original explant procedure was revolutionized by two astonishingly simple discoveries. First, it was found that animal cells could be freed from the plasma clot by incubation of the culture with crude preparations of trypsin.[2] Moreover, it was found that trypsin treatment separated the cells from each other and that these cells when transferred to new clots continued to divide. Second, it was found that a clot matrix was not needed for cell growth but that suspended cells would attach themselves to glass, multiply, and grow as a monolayer.[3] At

*This study was supported by a grant from Muscular Dystrophy Associations of America, Inc.

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the same time, the great nutritional discoveries of this century, which led to the isolation and synthesis of the vitamins and the identification of the essential amino acids, freed the tissue culturist from his complete dependence on natural media. Largely as the result of the pioneering work of Fischer and the extensive and brilliant studies of Eagle, great progress has been made toward developing a purified tissue culture medium. The discovery of antibiotics has also played an important role in tissue culture techniques by reducing the frequency of infections, the loss of cell lines, and the failure of experiments. In many laboratories penicillin and streptomycin are now routinely added to the culture media, and these compounds have made possible the development of tissue culture on a commercial scale. With these newer techniques, it is now possible to prepare homogeneous suspensions of single cells from established cultures, count them, transfer them to glass in semipurified media, and measure their growth quantitatively by protein and desoxyribonucleic acid analysis or by direct counting of cells and nuclei.

With these remarks as a background, we may now examine in a little more detail some particular aspect of tissue, or, more precisely, cell culture and some of the problems related to the growth of specific cells from animal tissues.

Since the beginning of cell culture, the nutritional problem has received much attention. In the beginning, body fluids were used, that is, serum, plasma, ascitic fluid, and tissue juices, particularly those prepared from embryos, as sources of essential nutrients. Even today most cell lines require some mammalian serum in the medium for growth. Dialyzed serum is also active and is generally added to the medium at a level of 2 to 10 per cent. Various salt solutions, patterned after the composition of extracellular fluids, are used as diluents for the organic components of the media. Earle's balanced salt solution, which has the same composition both qualitatively and quantitatively as human plasma, is perhaps the best known of these preparations.

In recent years Eagle [4] and his group at the National Institutes of Health have defined the primary vitamin, mineral, and amino acid requirements for a number of mammalian cell lines. Most of the vitamins and all the essential amino acids are required. It is possible that the few vitamins that need not be added individually, such as B_{12}, E, and K, are provided in bound forms by the dialyzed serum proteins routinely added to the medium. Out of Eagle's analysis of the nutritional requirements has come the discovery that inositol is an essential vitamin for cultured cells, that glutamine must be added, and that specific requirements exist for tyrosine, arginine, histidine, and cystine. All of the common ions, including calcium and magnesium, are required, and evidence has recently been presented by Geyer and Chang [5] and Swim and Parker [6] that carbon dioxide is an essential growth factor.

Several cell lines have been grown on protein-free, chemically defined media, both in Parker's laboratory [7] and by Virginia Evans [8] in Earle's laboratory. Some 70 chemically defined substances are included in these synthetic media, and it is not known yet whether all of them are essential. While these protein-free synthetic media will support the growth and multiplication of certain cells, large initial populations are required or the cells will fail to grow. The relationship between the size of the population and growth suggests a mutual sharing of metabolites that are synthesized by the cells and diffuse into the media. Thus far, most cell lines fail to multiply on these synthetic media even when added in large amounts.

Mammalian cells in vitro reproduce by mitotic division and usually divide once every 18 to 24 hours, depending on the nature of the nutrient media and the particular cell strain employed. In our hands, growth on the best semipurified media yet devised can frequently be improved by the addition of embryo extracts. Because of their complexity, such extracts will require much study before their growth-promoting activity is fully understood.

Despite the obvious limitations associated with the lack of completely synthetic media, the tissue culture technique may be of advantage in attacking a number of problems that cannot readily be studied in the intact animal. For example, we wished to determine the effect of the extracellular hydrogen ion concentration on mammalian cell growth.[9] Such a study is impossible using intact animals because the *p*H cannot be varied and held constant at different levels and, in addition, changes in *p*H produce compensatory adjustments that in turn alter the *p*H itself. It seemed possible that such complications might be minimized using cultured cells, and the human cervical carcinoma cell (Fig. 1) isolated by Gey [10] was selected for preliminary study.

These cells were grown on Eagle's medium to which 10 per cent horse serum was added,

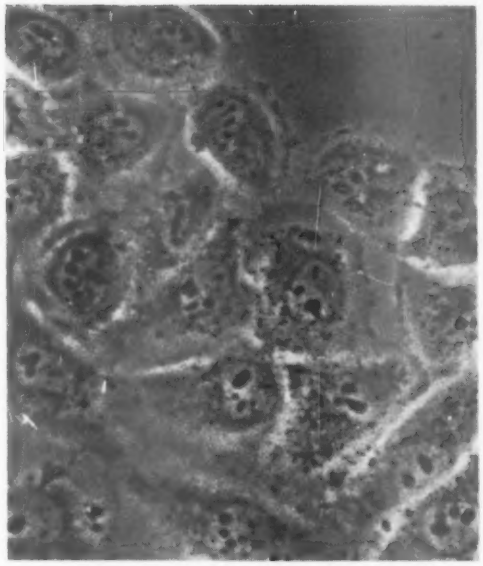

Fig. 1. Colony of living, unstained, HeLa cells, growing on glass, photographed under the phase contrast microscope (X50). The small granules are mitochondria that are concentrated around the oval or circular-shaped nuclei. The large, dark granules within each nucleus are nucleoli.

and the *p*H was varied by regulating both the partial pressure of carbon dioxide and the bicarbonate concentration of the medium. However, it was first necessary to determine whether the *p*H could be held constant during a reasonable period of growth. This was accomplished by gassing the culture chambers continuously with carbon dioxide and changing the medium daily. As shown in figure 2, the *p*H did not change significantly during a three day period even though growth was logarithmic with a division time of 24 hours. The *p*H was then varied by manipulating the carbon dioxide tension, and growth was measured by the net increase in cell protein over a period of three days.

Maximum growth was obtained over a much wider range in *p*H than had been anticipated (see figure 3). Below *p*H 7.3 it declined gradually, and above *p*H 7.8 it fell off precipitously. Identical results were obtained with a cell isolated from human liver by Chang.[11] We then isolated two fresh cell lines, one from rat liver and one from rat muscle, and studied their growth at various *p*H levels. Again, the curves were similar to the one illustrated in figure 3. Thus it appears that a variety of mammalian cells are

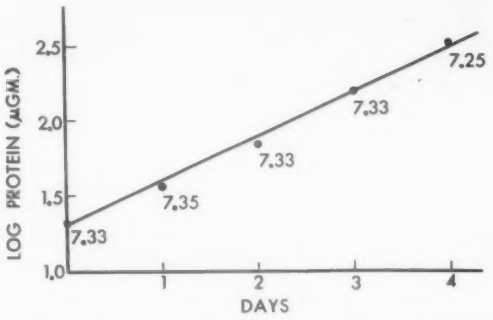

Fig. 2. Growth of HeLa cells at constant *p*H. Cells were grown for four days in Petri dishes and the nutrient medium was changed daily. The culture chamber was gassed continuously with 5 per cent carbon dioxide. The extracellular *p*H and the increase in cell protein was determined on replicate culture dishes at the end of each day. The fall in *p*H on day 4 indicates that the acid production of the growing population had begun to exceed the buffering capacity of the medium.

sensitive to the lower *p*H range that is associated with the onset of acidosis in the intact animal. Furthermore, at the higher *p*H values the breaking point in each case was almost exactly at the *p*H that is believed to mark the onset of tetany. Now it will be possible to

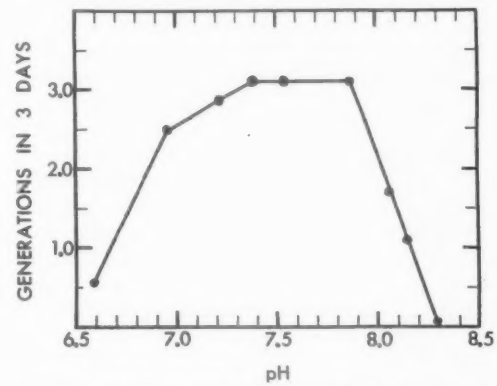

Fig. 3. Effect of *p*H on growth of HeLa cells. An initial inoculum of 31,000 cells was incubated for three days at 37 C in 60 mm. Petri dishes placed inside desiccators. The medium consisted of Eagle's basic medium supplemented with 10 per cent horse serum. The primary buffer of this medium is sodium bicarbonate. The various *p*H levels were established and maintained by gassing the desiccators continuously with compressed air containing various percentages of carbon dioxide. Cell growth is expressed as the number of cell generations in three days. Thus, 2.0 and 3.0 generations represent fourfold and eightfold increases, respectively, in cell numbers and in cell protein.

study the mechanisms whereby small changes in hydrogen ion concentration effect cellular metabolism and, perhaps, to extend these findings to the intact animal.

As mentioned in the introduction, the technique of cell culture is being applied to many areas of experimental medicine. One of these is the problem of carcinogenesis. Although Carrel carried a strain of chick fibroblast cells for 25 years with the cells apparently retaining their original characteristics,[12,13] and many other cell lines have been cultivated for prolonged periods, more recent studies by a number of investigators[14,15] indicate that mammalian cells in culture undergo chromosomal changes and acquire malignant characteristics. It is to be hoped, therefore, that tissue culture techniques may shed light on the origin of cancer through studies in the test tube under controlled conditions. Moreover, the problems of growth, differentiation, regeneration, and homeografting may also be studied in cells grown in tissue culture.

Perhaps the greatest contribution of this technique to medicine thus far was the discovery by Enders that the poliomyelitis virus could be grown on monolayers of monkey kidney cells stretched on the glass surface of bottles. This finding was essential for the production of the large quantities of poliovirus that led to the development of the Salk vaccine. Tissue culture has also contributed to our information concerning the cellular specificity of viruses. For example, a culture of fibroblasts inoculated with Rous virus shows little cellular reaction; however, the same virus multiplies readily in cultured leukocytes. Whether the presence of a virus is intimately associated with the production of malignant tumors is also being studied in tissue cultures. Cultured cells are also being used in the study of allergy and hypersensitivity states. Since cells grown in vitro are susceptible to cytotoxic factors and are at the same time free of the complications of nervous and circulatory regulation, their direct response to controlled titers of antigen can be investigated.

Recent studies on the chromosome number and chromosomal constitution of various mammalian cells cultivated in vitro have been reported by Hsu and Klatt at the University of Texas.[16] These investigations have been concerned with the problem of chromosomal change(s) or stability in cultured cells and the relation of the cellular environment to the development of malignant cells. How constant the chromosomes remain, and what influences cause them to alter their genetic information, may illuminate fundamental problems concerning the totipotency of cells. For such studies it is essential that clones be grown from isolated single cells. Sanford, Earle, and Likely[17] have succeeded in growing clones from single cells, isolated and visualized microscopically, in micropipettes. Recently, Puck and Marcus[18] have applied the plating technique of the bacteriologist to the growth of discrete colonies from dilute suspensions of tissue culture cells and from cells prepared by trypsinizing tissues.

Thus far, the discussion has been concerned with the behavior of cells derived originally from explants, or from trypsinized tissues, and established as cell lines, sometimes with great difficulty, and almost always without knowledge of their precise progenitor in the intact tissue in vivo. Tissues are often derived from several different germ layers and always consist of a mixed population, both morphologically and biochemically speaking. It is evident, therefore, that the disruption of a tissue will yield a variety of cells. It is pertinent, then, to, ask, "What is the nature and origin of the fibroblast and epithelial-like cells that are grown in culture flasks?" Do parenchymal cells revert in vitro to a more primordial and less differentiated cell type than that originally existing in the tissues? Or, alternatively, are the cells that grow directly from tissue explants and trypsinized tissues less differentiated cells that are present in all tissues? Perhaps several widely distributed cell types possess qualities that favor their growth in tissue culture. In any case, it is not yet possible to grow at will the cells that are most characteristic of the various organized living tissue, or if they are grown they are no longer recognizable and new means of identifying them, such as biochemical markers, must be sought. In this regard, embryonic tissues appear to offer some advantages, for with them it is possible in some instances to obtain cultures that resemble the predominant cells in vivo. However, it is frequently the adult liver, muscle, thyroid, or pancreatic cell that is needed for experimental purposes.

Despite the present usefulness of tissue culture in biology and experimental medicine, its full potential will not be realized until further advances have been made. For example, a completely purified medium is essential. When one considers the minute amounts

of vitamin B_{12} required by man, the difficulty presented in discovering all of the nutritional requirements of small numbers of cells is apparent. Undoubtedly, a new level of chemical purity will have to be exacted in determining all of the growth requirements of different cell types. A second compelling problem is the identification of cells that grow from tissue explants and disrupted tissues and the discovery of the conditions that favor the growth of any desired parenchymal cell. Many laboratories are at work on these problems, and rapid progress can be expected. Unless differentiated cells revert inexorably to undifferentiated types outside the body, we can expect that experiments on cultured animal cells will soon rival in volume those carried out on different species of bacteria. In this event, the impact of tissue culture on medicine may well equal, or surpass, the great advances that have stemmed directly from the science of bacteriology.

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Center for Silicones in Medical Research

The Dow Corning Corporation, Midland, Mich., has established a nonprofit Center to aid physicians and surgeons in finding ways to use silicones in medical research. The Center for Aid to Medical Research has three purposes: to provide technical aid in the use of silicones in medicine and surgery, to act as a clearinghouse for information about the medical use of silicones, and to co-operate in research in organosilicon chemistry in relation to the human body. The Center will serve as a liaison between the medical profession and the resources of the Dow Corning Corporation through correspondence and by personal contact. There is no charge for this service.

Griseofulvin — an Oral Antibiotic for Superficial Mycoses*

James M. Flood, M.D.

WITHIN THE PAST THREE decades three pharmaceutical discoveries have added to the therapeutic armamentarium of the dermatologist, agents that have affected the course of dermatological therapy perhaps more than all the medicaments brought into use in the preceding 300 years. The first of these was the discovery of the sulfonamides by Mietzsche, Klarer, and Domagk in 1931; the second resulted in the advent of penicillin in 1942, which led to the whole family of antibacterial antibiotics; and the third was the introduction of cortisone, the parent compound of the anti-inflammatory steroids, in 1948. If griseofulvin, an orally effective antifungal antibiotic obtained as a fermentation product from *Penicillium griseofulvum dierckx, p. janczewski,* and *p. patulum,* continues to fulfill its early promise, it may well represent another such discovery.

The history of griseofulvin is an interesting one in that, had it not been for a quirk in the fate of antibiotic research, the clinical use of this compound might have preceded that of all the other antibiotics. Griseofulvin was first isolated in 1939 from *P. griseofulvum dierckx* by Oxford and associates.[1] However, as antibiotic research at that time had as its major objective the discovery of antibacterial agents, griseofulvin did not receive much attention. Then, in 1947, Brian[2] reported to the Fourth International Congress on Microbiology the isolation of a new substance from *P. janczewski,* which he called the "curling factor," because its addition to fungous cultures produced abnormal development of fungal hyphae; that is, they shriveled and became stunted. Later in 1947 Grove and McGowan[3] identified griseofulvin and the "curling factor" as the same substance. After these discoveries griseofulvin was widely used to combat fungal diseases in comestible plants (for example, *Botrytis* infections in lettuce and *Alternaria* blight in tomatoes[4, 5]) and in the treatment of ringworm in cattle.[6]

In spite of the numerous reports on the successful use of griseofulvin in horticulture and veterinary medicine, several more years passed before Gentles started studying the feasibility of using this antibiotic in human dermatomycoses. During these studies Gentles[7] and his group demonstrated the dramatic effectiveness of griseofulvin in experimentally induced ringworm in guinea pigs; moreover, their report[8] on the recovery of fungistatic amounts of orally administered griseofulvin from the hair of guinea pigs was one of the first indications that this antibiotic is absorbed from the gastrointestinal tract and incorporated into newly growing cells of the skin, hair, and nails, and that it eventually reaches the keratin where it exerts its effect upon the fungi. The work of these researchers sparked world-wide clinical investigation of griseofulvin.

The first of the clinical reports on the beneficial effects of griseofulvin in human subjects came from Riehl[9] in Austria, who described 15 cases of infection by dermatophytes completely eradicated with orally administered

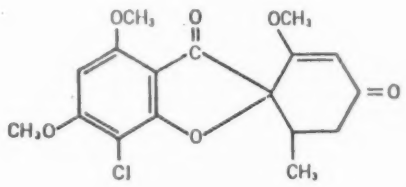
*The griseofulvin used in this study was furnished as Fulvicin through the courtesy of Harry V. Pifer, Jr., M.D., Division of Clinical Research, Schering Corporation, Bloomfield, N.J.

Dr. Flood is Chief, Dermatology Section, Guthrie Clinic and Robert Packer Hospital, Sayre, Pa., and Associate in Dermatology, Graduate School of Medicine, University of Pennsylvania.

griseofulvin. This initial group included 3 cases of onychomycosis, 2 of tinea capitis, 8 of tinea pedis and manum, and 2 of tinea corporis. Riehl's pioneer work was rapidly followed by studies from other leading investigators throughout the world. The distinguished list of these researchers includes Williams and others[10] in England; Pardo-Castello and co-workers[11] in Cuba; Blank and Roth,[12] Reiss,[13] Goldman,[14] Sulzberger and Baer,[15] Robinson and others,[16] Pipkin,[17] and the Brooke Army Hospital Staff[18] in the United States; Gonzales Ochoa and Ahumada Padilla[19] in Mexico; and Sidi and Spinasse[20] in France.

CHEMISTRY

Griseofulvin is 7-chloro-4:6-dimethoxycoumaran-3-one-2-spiro-1′-(2′-methoxy-6′-methylcyclohex-2′-ene-4′-one). Griseofulvin has the following structural formula:



The empirical formula is $C_{17}H_{17}O_6Cl$. Griseofulvin is obtained as a white, thermostable powder or as needlelike crystals with a bitter aftertaste. The compound is stable in its dry form for 20 months at 38 C.

CLINICAL USE OF GRISEOFULVIN

A review of the studies on griseofulvin, as well as the observations made during our own study, permit us to draw some initial conclusions as to the clinical value of griseofulvin and its proper use.

Antifungal Spectrum. Griseofulvin exerts a fungistatic, not fungicidal, effect upon *Trichophyton mentagrophytes (gypseum), T. rubrum (purpureum), T. schoenleini, T. sulfureum, T. tonsurans, T. verrucosum, T. interdigitale,* and *T. violaceum; Epidermophyton floccosum;* and *microsporum audouini, M. canis (lanosum),* and *M. gypseum (fulvum)* (see figure 1). Griseofulvin thus is almost uniformly efficacious against the superficial fungous conditions known as ringworm infections: tinea capitis (ringworm of the scalp), tinea barbae (tinea sycosis, barber's itch), tinea corporis (tinea circinata, tinea glabrosa), tinea cruris, tinea pedis (athlete's foot), and onychomycosis (tinea unguium).

According to various reports[10,12,21] griseofulvin has no effect upon moniliasis (candidiasis), cryptococcosis, sporotrichosis, North American blastomycosis, histoplasmosis, actinomycosis, coccidioidomycosis, and chromoblastomycosis.

Diagnosis by Laboratory Tests. Since numerous conditions, such as psoriasis, parapsoriasis, syphilis, intertrigo, leprosy, seborrheic dermatitis, alopecias, some bacterial infections, and moniliasis, may have similar clinical appearance to the fungous conditions responsive to griseofulvin, diagnosis should in all cases be confirmed by appropriate laboratory studies. Prior to institution of treatment, scrapings from marginal scales or a vesicle top are taken for examination. Part of this material is used for direct mounting with a 20 per cent potassium hydroxide (KOH) solution and subsequent microscopic examination; the remainder is placed in a culture medium. When *T. verrucosum* is suspected as the offending pathogen, cultures should be enriched with thiamine and incubated at 37 C to facilitate the growth of the fungus. Microscopic examination of hairs, scales, vesicle tops, or nails will show the presence of fungi; in some cases it may, however, be difficult to culture the offending fungus and thus determine the species responsible for the infection. While it is desirable to determine the species of fungus, patients in whom only the microscopic examination yields positive results should receive a trial of griseofulvin since, in most such cases, the fungus present is one of those responsive to this antibiotic. Wood's filter is used by us in cases of tinea capitis, since hair infected with *M. audouini* or *M. canis* will definitely fluoresce under it; bluish-green fluorescence constitutes a positive diagnosis. Tinea capitis due to other fungi does not fluoresce under Wood's filter.

If local diagnostic facilities are not available, the clinician can send the scrapings to a medical mycology laboratory.

Therapeutic Regimen. The average dosage of griseofulvin is 250 mg. four times a day. Children generally respond to one-half to three-quarters the adult dosage; that is, 250 mg. twice or three times daily.

Early signs of response to griseofulvin, such

as fading of lesions of the glabrous skin, restoration of adequate perspiration, and subsidence of itching, may be seen in the first few days; however, treatment should be continued until two weeks after both microscopic examinations and cultures prove totally negative for the presence of fungi. It should be borne in mind that viable fungi may be present for some time after lesions have undergone involution.

The duration of treatment does not appear related to the duration of the disease but seems to vary with the area of involvement. While some workers have reported cures of infections of the scalp and the glabrous skin in only 2 weeks, our studies reveal that 3 to 10 weeks are usually required for complete eradication of the fungi. Infections involving areas of thicker skin, such as the palms or soles, generally require from 8 to 12 weeks, and infections of the nails must be treated for three to six months. Because toenails grow at a slower rate, they usually require much longer therapy than fingernails.

Supplemental Measures. To accelerate the eradication of the infection, several supplemental measures should be used during treatment with griseofulvin. Since in tinea capitis the distal portion of the hair remains infected while the newly growing hair is free from fungi, the author recommends that the hair be clipped close at weekly intervals. In cases of onychomycosis the nails should be kept short; surgical removal of the nails is not recommended, as this highly traumatic procedure is certainly unnecessary with the availability of an effective antifungal agent. Care also should be taken to treat concomitant infections that may be unresponsive to griseofulvin.

To avoid reinfection, a frustrating problem with superficial mycoses, infected clothing, such as gloves, hats, socks, and stockings, should be thoroughly decontaminated or discarded. The same is true of pillowcases and other objects that come into direct contact with infected areas of the patient.

Possibility of Acquired Resistance. No cases of fungi resistance to griseofulvin have been seen at our clinic; however, Robinson's[16] studies suggest that sensitive fungi may eventually develop resistance to griseofulvin in cultures. One patient treated in our clinic had a recurrence of a *T. mentagrophytes* infection of the toenails and soles, which cleared completely upon re-treatment, indicating that there was no development of resistant strains; the original course of therapy may not have been sufficiently long in this case. Goldman[21] reported a case of a female patient with a *T. rubrum* infection that relapsed several times on griseofulvin given orally but that was controlled with topically applied griseofulvin. Repeated cultures from that patient showed the same degree of sensitivity to griseofulvin as the pretreatment cultures.

Standard Precautions and Side Effects. As is customary with new antibiotics, our patients on griseofulvin therapy are maintained under relatively close surveillance. Blood counts are done at two week intervals and patients are advised to report immediately the occurrence of abnormal manifestations, such as sore throat and fever. The side effects observed in our series have been limited to one instance of nausea and vomiting, which disappeared upon reduction of dosage from 250 mg. four times daily to 250 mg. three times daily, and 2 cases of apparently increased sun sensitivity. Several undesirable effects have, however, been reported by other investigators. These include a few cases of urticarial, maculopapular, or vesicular eruptions, occasional instances of headaches,[15,19] and a case of reactivation of a long-standing colitis.[19] Pipkin[17] reported a small number of cases of temporary white blood cell count depressions, which rebounded while the patients were still under treatment. Although griseofulvin is obtained from three species of *Penicillium*, there appears to be no cross sensitivity with penicillin. Blank and Roth,[12] Goldman,[21] and the author have given griseofulvin to known penicillin reactors without untoward reactions.

The work of Paget and Walpole[22] has raised some question as to the possible interference of griseofulvin with mitosis in actively dividing cells, particularly with spermatogenesis. These workers observed such interference in rats after intravenous and intraperitoneal administration of unusually high doses (up to 200 mg. per Kg.) of griseofulvin. Blank and Roth[12] were not able to confirm these findings in human subjects in whom periodic sperm counts were carried out and who showed no deviations from the normal. John MacLeod and Warren Nelson are currently conducting a large-scale study involving weekly sperm counts as well as testicular biopsies in patients under prolonged oral therapy with therapeutic doses of griseofulvin. To date, the results of this study have shown no adverse effects upon spermatogen-

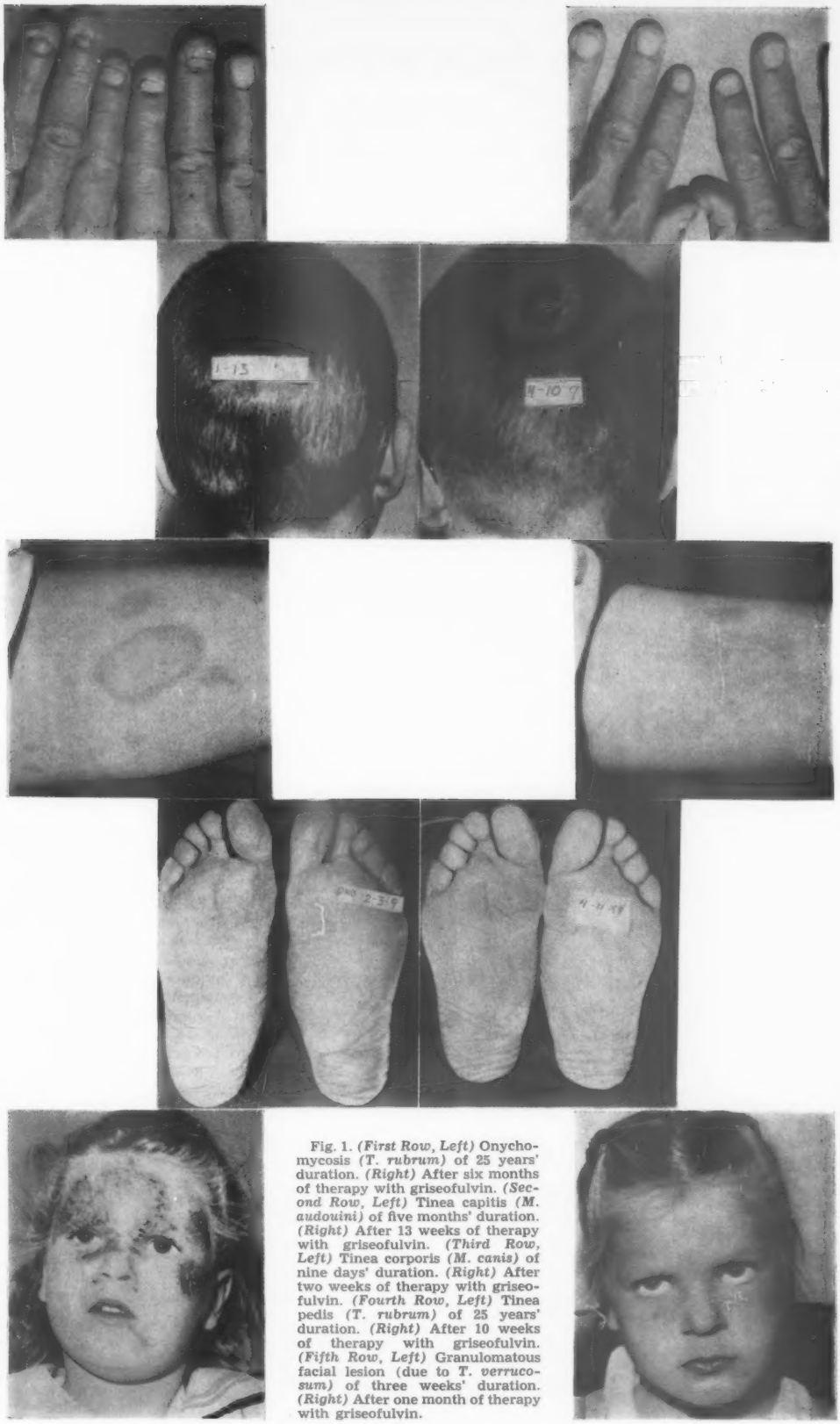


Fig. 1. *(First Row, Left)* Onychomycosis *(T. rubrum)* of 25 years' duration. *(Right)* After six months of therapy with griseofulvin. *(Second Row, Left)* Tinea capitis *(M. audouini)* of five months' duration. *(Right)* After 13 weeks of therapy with griseofulvin. *(Third Row, Left)* Tinea corporis *(M. canis)* of nine days' duration. *(Right)* After two weeks of therapy with griseofulvin. *(Fourth Row, Left)* Tinea pedis *(T. rubrum)* of 25 years' duration. *(Right)* After 10 weeks of therapy with griseofulvin. *(Fifth Row, Left)* Granulomatous facial lesion (due to *T. verrucosum)* of three weeks' duration. *(Right)* After one month of therapy with griseofulvin.

esis. It is hoped that this comprehensive study will resolve this question definitively.

Results with Orally Administered Griseofulvin in 52 Patients (see table I). Our series includes 17 cases of infections due to *T. verrucosum*. Since this is a relatively uncommon condition except in rural areas, I should like to comment upon it briefly.

TABLE I

Results with Orally Administered Griseofulvin in Fifty-Two Patients

Case No.	Sex	Age, Yr.	Area of Involvement	Offending Pathogen	KOH Slide	Culture	Duration Disease	Duration Treatment	Results
1	M	8	Scalp	*M. audouini*	+	+	5 mo.	10 wk.	Cured
2	F	5	Scalp	*M. audouini*	+	+	5 mo.	6 wk.	Cured
3	F	6	Scalp	*M. audouini*	+	+	2.5 mo.	10 wk.	Cured
4	M	9	Scalp	*M. audouini*	+	+	5 mo.	10 wk.	Cured
5	M	8	Scalp	*M. audouini*	+	+	2 mo.	6 wk.	Cured
6	M	16	Axilla (left), groin	*E. floccosum* (?)	+	−	9 da.	4 wk.	Cured
7	F	22	Arm (right)	*M. canis* (?)	+	−	9 da.	2 wk.	Cured
8	F	46	Toenails, soles	*T. mentagrophytes*	+	+	15 yr.	4 mo.	Recurrence on sole after 1 mo., retreated for 1 mo., cured
9	M	44	Palms, soles	*T. rubrum*	+	+	25 yr.	6 mo.	Improving, still under Rx
10	M	36	Groin, soles	*T. rubrum*	+	+	16 yr.	7 wk.	Cured
11	M	32	Chin, 1 finger	*T. rubrum*	+	+	2 wk.	6 wk.	Cured
12	M	25	1 finger	*T. rubrum*	+	+	2 wk.	4 wk.	Cured
13	F	19	Soles	*T. rubrum*	+	+	18 mo.	4 wk.	Cured
14	M	47	Toenails	*T. rubrum*	+	+	5 yr.	6 mo.	Cured
15	F	38	Toenails, soles	*T. rubrum*	+	+	15 yr.	6 mo.	Still under Rx
16	M	40	Palm, finger, soles, 1 toenail	*T. rubrum*	+	+	8 yr.	4 mo.	Cured
17	M	31	Palms, soles, toenails	*T. rubrum*	+	+	10 yr.	6 mo.	All clear except nails, still under Rx
18	M	47	Palm (right)	*T. rubrum*			8 yr.	4 mo., stopped for 6 wk., and resumed Rx	All clear except toenails, still under Rx
19	M	37	Palm (right), soles, toes, and fingernails	*T. rubrum*	+	+	6 yr.	4 mo., still under Rx	Still under Rx
20	F	57	Great toenails	*T. rubrum*	+	+	10 mo.	4 mo.	Still under Rx
21	F	15	Thumbnail (right)	*T. rubrum*	+	+	2 yr.	4 mo.	Still under Rx,
22	M	50	Palm, fingernails, soles, all toenails	*T. rubrum*	+	+	16 yr.	6 mo.	Still under Rx, all clear except toenails
23	M	46	Groin, palms, soles, toenails	*T. rubrum*	+	−	10 yr.	3 mo.	Groin clear in 2 wk., palms clear in 2 mo., toenails still under Rx
24	F	43	Great toenails	*T. rubrum*	+	−	3 yr.	2 mo.	Still under Rx

(*Continued on next page*)

25	M	30	All toenails, all fingernails except R.1	*T. rubrum*	+	+	13 yr.	2 mo.	Still under Rx
26	M	45	Palms, soles, great toenails	*T. rubrum*	+	−	1 yr.	2 mo.	Improving, still under Rx
27	M	37	Groin, great toenails, soles	*T. rubrum*	+	+	3 yr.	3 mo.	All clear except toenails
28	F	49	Hands, 2 fingernails	*T. rubrum*	+	−	2 yr.	3 mo.	Hands clear, nails still under Rx
29	M	45	Palms, soles, all toenails, fingernails (R.1-3, L.1-3-4-5), wide spread body lesion	*T. rubrum*	+	−	15 yr.	1 mo.	Body lesion clear, palms and soles better, nails still under Rx
30	M	51	Soles, all toenails except L.3	*T. rubrum*	+	−	6 yr.	2 mo.	Improving, still under Rx
31	M	56	Palms, soles, toenails (R.1, L.1-2-3)	*T. rubrum*	+	−	10 yr.	2 mo.	Palms and soles clear, still under Rx
32	M	56	Palms, soles, 1 fingernail, 2 toenails	*T. rubrum*	+	+	6 yr.	4 mo.	All clear except toenails, still under Rx
33	M	55	Groin, palms, soles, fingernails (R.2-3, L.1-2-3-4), all toenails	*T. rubrum*	+	+	25 yr.	5 mo.	Groin, palms clear, feet better, nails still under Rx
34	M	54	———	*T. rubrum*	+	+	15 yr.	6 wk.	Still under Rx, improving
35	M	59	R. hand all nails, L. hand 3rd nail, soles, both great toenails	*T. rubrum*	+	+	15 yr.	5 mo.	All clear except nails
36	M	50	Upper lip, eyelid, neck (granuloma)	*T. verrucosum*	+	+	4 wk.	25 da.	Cured
37	F	10	Chin (circinata)	*T. verrucosum* (?)	−	−	10 da.	14 da.	Cured
38	M	9	Left side of forehead, scalp (granuloma)	*T. verrucosum* (?)	+	−	30 da.	14 da.	Cured
39	M	27	Beard, arms (granuloma)	*T. verrucosum*	+	+	2 mo.	21 da.	Cured
40	F	6	Abdomen (circinata)	*T. verrucosum*	+	+	1 wk.	14 da.	Cured
41	F	6	Scalp (kerion)	*T. verrucosum*	+	−	2 da. (?)	4 wk.	Cured
42	F	4	Scalp, face, arms (kerion and granuloma)	*T. verrucosum*	+	+	3 wk.	23 da.	Cured
43	F	28	Right wrist (circinata)	*T. verrucosum*	+	−	2 mo.	23 da.	Cured
44	F	8	Left thigh (granuloma)	*T. verrucosum*	+	+	3 wk.	14 da.	Cured
45	M	6	Scalp (kerion)	*T. verrucosum*	+	+	10 da.	1 mo.	Cured
46	M	4	Chest (circinata)	*T. verrucosum* (?)	−	−	1 da.	17 da.	Cured
47	F	8	Scalp (kerion)	*T. verrucosum*	+	+	3 wk.	20 da.	Cured

(*Continued on next page*)

48	F	24	Arm (circinata)	*T. verrucosum*	+	—	2 wk.	20 da. 20 da.	Cured
49	M	28	Face (circinata)	*T. verrucosum*	+	—	3 da.		Cured
50	M	17	Arm (circinata)	*T. verrucosum*	+	+	30 da.	21 da.	Cured
51	F	8	Face (granuloma)	*T. verrucosum*	+	+	3 wk.	20 da.	Cured
52	M	12	Face (granuloma)	*T. verrucosum*	+	+	2 wk.	21 da.	Cured

T. verrucosum is usually transmitted to human subjects by cattle and therefore is mostly seen in rural areas. It appears to be a seasonal condition, occurring chiefly during the spring and early summer. Lesions may involve the beard, the scalp, or other areas of the body; nails are not affected by this fungus. Unlike other conditions responsive to griseofulvin, *T. verrucosum* infections are self-limited and will clear on an average of six weeks after reaching the pustular and granulomatous stage if left untreated. We recommend the use of griseofulvin in these infections to abbreviate the course of the disease and thus avoid the period of acute illness and disability that frequently accompanies it, and to prevent the major scarring often seen. If therapy is started early during the circinata stage, the infection may be brought under control before reaching the granulomatous and scarring stage.

SUMMARY AND CONCLUSIONS

1. Griseofulvin, a fermentation product from *Penicillium griseofulvum dierckx, P. janczewski, and P. patulum,* is an oral antibiotic with a specific fungistatic effect upon the pathogens responsible for certain superficial mycoses.

2. Griseofulvin has proved almost uniformly effective against tinea capitis, barbae, corporis, cruris, pedis, and unguium.

3. The average effective dosage in adults is 250 mg. four times daily. Children will respond to one-half to three-quarters the adult dosage.

4. The duration of treatment does not appear related to the duration of treatment of the disease but seems to depend mostly upon the area involved. While infections of the scalp and glabrous skin may clear in as little as three weeks, up to six months or more of therapy may be required when the nails are involved.

5. The side effects with griseofulvin appear to be gratifyingly rare and have been transitory in nature when seen.

6. It is important that a correct diagnosis be established, by means of laboratory tests, before treatment is instituted. Such tests will assure differentiation between those fungous infections responsive to griseofulvin and a number of potentially serious conditions that may be similar in clinical appearance.

7. Griseofulvin offers us the first systemically administered cure for superficial fungous infections; it obviates the need for potentially hazardous roentgen-ray treatment as well as for the highly traumatic surgical removal of nails.

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Cost of Drugs

Four out of 10 patients complain to their physicians about the high price of pharmaceuticals. In an article by Andrew Mashberg of the Health News Institute ("Conquest at Bargain Prices," *Memphis Medical Journal*) a comparison of dollar value and time saved shows that costs are actually lowered. A prescription for antibiotics costing $15 to $20 will stop an ear infection that in 1940 would probably have resulted in mastoiditis, for which little more than palliative treatment could be given before surgery, with costs up to $1,000.

Mr. Mashberg also points up the case of lobar pneumonia, which, 30 years ago, meant five weeks in the hospital, convalescence at home, and a three to one chance of survival. Today a patient rarely needs to be hospitalized, spends about $15 for penicillin or $30 for a broad-spectrum antibiotic, and recovers in two weeks or less.

In 1929 Americans spent 0.73 per cent of their net income on drugs and sundries. In 1957 this figure had increased to only 1 per cent despite an increase in the average price of prescriptions from 85 cents in 1929 to $2.90 in 1957. Bureau of Labor statistics show that medicine costs have risen only 26 per cent since 1946, compared with 41 per cent for food, 45 per cent for rent, and 39 per cent for the cost of living index in general.

Pharmaceutical manufacturers are spending about 9 per cent of their sales profit on research. Research spending increased 50 per cent from 1956 to 1958, and, of the many drugs compounded, only 1 in 500 to 1,000 ever reaches the drug store.

The Modern Concept of Psychosomatic Medicine*

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THE MEDICAL PRACTITIONER today finds himself faced with a changing pattern of disease. The illnesses that accounted for our major mortality and morbidity as recently as 50 years ago are no longer so important. Replacing them at the head of the list are cardiovascular diseases, arthritis, and other illnesses about which little is known. Many of these lead to chronic morbidity, and, although nearly half the sufferers from chronic disease have been found to be under 45 years of age and 70 per cent under 55, they frequently affect those of later life as well. The marked rise in the number of people of advanced years naturally increases the incidence of these disorders. The types of illness, therefore, with which the doctor is least prepared to cope are those that he will meet in his practice in ever greater numbers.

UNSATISFIED NEEDS

Up until now too many patients have been regarded predominantly as pathological material, but both patients and the public at large are no longer satisfied with the concentration of medical interest on diseases as such—on pathology and findings post mortem. They ask, "Is all this illness really necessary?" Many of them feel that we have been weighed in the balance and found wanting in dealing with their ills and distresses, so they visit religious and lay healers and quacks and charlatans seeking the consolation that we do not give them. It is noteworthy that many patients make dramatic recoveries or gain considerable relief from these nonmedical practitioners. This is a phenomenon that demands scientific study on the part of the medical profession. Why do they succeed when we fail?

Another challenging fact is that many patients who are discharged from our leading hospitals or by highly qualified physicians as having no demonstrable organic disease still remain sick and, in a number of cases, later develop recognizable organic illnesses—often the very disease that their earlier symptoms suggested. This has occurred in my own experience in a number of patients who subsequently developed peptic ulceration or carcinoma of the stomach or duodenum, or who developed acute hyperthyroidism. In other cases the patient drifts into chronic invalidism—a burden to himself, the doctor, and the community. Naturally it is very discouraging to be faced with a form of illness and not to understand its nature and treatment. Since, however, more and more people are suffering from just these types of illness, it is obvious that we cannot simply take the course of rejecting or ignoring their condition. The question therefore arises: are our basic concepts, methodology, and techniques outmoded and do we need to try to work out a completely different approach?

STRESS DISEASES

Happily the pendulum is beginning to

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swing back from the extreme scientific approach toward the middle line of reconciliation between the concept of the patient as a human being with his own emotional and spiritual life and as a box of mechanical tricks with something wrong with the works. This has paved the way for the acceptance of the concept of stress diseases, a term coined by Selye of Montreal, who pointed out that, in circumstances that constitute an emotional stress for the individual, certain types of disease are prone to develop. This concept postulates that not only are emotional factors responsible in many cases for physical symptoms of disturbed function—or at any rate play a major role in producing or exacerbating them—but that they can actually lead to organic tissue changes through the prolongation of unfavorable physiological responses to emotional stimuli. Our interest therefore should center first on the patient and secondly on his disease. The questions we must always ask ourselves are: Why did the patient fall sick? Why did he develop these particular symptoms? Why did he fall sick at this particular time? What is his attitude to his illness? What kind of a person is he as regards both his physiological and psychological make-up? What are his social and environmental circumstances and how does he react to them? What is his attitude to life as a whole? For the doctor who has 30 patients in his waiting room this is a truly terrifying list of questions, especially as it may well be impossible to answer a number of them adequately because the patient himself is unaware of many of the factors involved and cannot give a connected or clear account of himself. Listening to the patient's story and coping with his emotional problems is inevitably time-consuming, and this perhaps is the greatest difficulty that the doctor has to contend with. However, the simultaneous consideration of the psychological, physical, and environmental factors is the only means of arriving at a true diagnosis or of estimating the probable prognosis of any morbid condition. Treatment without such investigations will almost certainly be merely haphazard and a shot in the dark.

PERSONALITY TYPES

It is essential for us to realize that we are dealing with people of very different personality types. There is general agreement that some 30 to 40 per cent of the population seem to constitute a special group in certain definite ways. It is difficult to assess exactly in what this difference consists, but those who have had the experience of handling them are well aware that the difference is a fundamental one and that it is not only psychological but also physiological. These people are characterized by what one might term an increased sensitiveness, both of the mind and of the body, and are therefore more vulnerable to "the slings and arrows of outrageous fortune" than those whom we might perhaps describe as the tough, who constitute some 60 per cent of the population. The sensitive or tender, as they have sometimes been called, undoubtedly find life more difficult from the emotional point of view because they are more aware of, and more responsive to, the impact of the personalities of those around them and also because they are more aware of themselves. They are the thinking, feeling type and often are disturbed by conflicts within their own personalities.

On the physical side their make-up appears to be more labile, more easily disturbed in function by environmental factors and interpersonal relations, and in closer rapport with their emotional condition. Thus any kind of psychological upset has marked repercussions on the functioning of their bodies, giving rise to those disturbances that are now termed psychosomatic. They also have an exaggerated reactivity to such external nociceptive stimuli as toxins, climatic conditions, fatigue, and the many material stresses that are unavoidable in the lives of most people. They frequently react abnormally to drugs of various kinds and are often allergic. An exaggerated response to emotional disturbances via the autonomic nervous and biochemical systems may result in the production of some form of spasm, and many of the dysfunctions that occur so commonly, especially in this kind of person, can be attributed to this type of reaction.

EARLY RECOGNITION

It is from this 30 to 40 per cent of the sensitive that nearly all patients suffering from psychosomatic disorders are likely to be drawn, so family doctors should learn to look for and recognize the sensitive in their practice. This will immediately put them on the track of the type of patient who is a potential psychosomatic problem and will also be of

some help in handling them from the start. It is of vital importance to begin aright with people of this temperament. They have strong likes and dislikes and by their very nature are extremely sensitive to the impact of another personality on their own. Many of them fear that the doctor will despise them or believe that they are malingering: in other words think that they are either fools or knaves. They have already received so much of this kind of treatment from their friends and relatives that they are naturally suspicious. The tough usually find themselves completely out of their depth with the sensitive and, as we all know, nothing makes us more hostile than the feeling that we are at a disadvantage. The somewhat inadequate personality arouses all the worst passions of the more adequate. I am afraid that this is also true of us as doctors.

CHILDREN AND ADOLESCENTS

A child should always be regarded as a potential psychosomatic problem if he shows signs of exaggerated sensitiveness to any aspect of his environment from birth onward, and the family doctor should be on the watch for any disturbance in the emotional relationships between the parents themselves and the parents and the child or his brothers and sisters. In the baby, impaired digestion, poor sleep, failure to gain weight, peevishness, and retarded progress may all be psychiatric danger signals and need to be investigated from this approach as much as physically. In the case of the toddler and young child, behavior disorders may be associated with physical reactions to emotional stress or may be the only evidence of disturbance. If the school child has a poor work record—especially in reading and arithmetic—or if he fails to progress or goes back, this is a definite indication for psychiatric investigation, since there may be mental subnormality or emotional disturbance.

Above all, the adolescent needs to be watched for psychological disturbances. These are very commonly associated with the physiological changes of prepuberty and puberty, and are often the breeding ground of a lifelong neurotic attitude that results in failure to mature emotionally and sometimes physically as well. Adolescents, in particular, require early referral for psychiatric help since they are often at loggerheads with their parents and have no one to whom they can turn for help or understanding.

In the case of the sensitive it is quite certain that the tendency to develop chronic invalidism of a psychosomatic nature will be greatly reduced if the family doctor realizes from the start the type of patient he is dealing with and takes the trouble to establish the right kind of personal relationships with him at the first interview. The better type of sensitive persons are those of more than ordinary courage, as indeed they need to be to cope with their temperaments, and it is surprising how greatly they can benefit from a very little psychological help if it comes from a person in whom they have confidence. All psychiatrists have had patients for whom a single interview has sufficed to change their whole attitude to life—and this applies both to children and adults. I am constantly astonished by the understanding that my patients have of their doctors and how accurately they assess the amount of help they can get from them. They know instantly whether they can rely upon a doctor to understand them and to treat them with consideration. This not only helps the patient enormously but also helps the doctor, as he will not be likely to be called up at midnight because the patient is in a state of panic and possibly of resentment as well.

ORGAN VULNERABILITY

Although one cannot correlate any specific personality type or any particular type of emotional stress with any specific symptomatology, it does appear that the particular organ or organs that are affected remain surprisingly constant for the individual. Adler's doctrine of organ inferiority is well illustrated by this. Most people have their individual organ vulnerability. The tissues most commonly involved are the circulatory system, including the vasomotor system, the digestive tract, and the skin. What have been termed fibrositic manifestations are also extremely common in association with emotional stress. In women, gynecological disturbances are also prevalent, notably premenstrual tension, which has recently come into such prominence and which includes in its symptom complex physiological and psychological dysfunctioning. Women who have experienced this often have considerable menopausal disturbances both psychological and somatic. In these cases the psychic disturbance may be secondary to the glandular changes.

AUTONOMIC SYSTEM

It is important to consider the mechanisms by which these psychosomatic disturbances are produced. They fall into two main groups. First there are the psychogenic bodily disturbances that involve the internal vegetative organs. These are much the commonest and occur predominantly in response to anxiety and tension. It will be recalled that the functioning of the viscera is regulated by the autonomic nervous system, which can never under any circumstances come under voluntary control. The total functioning of the nervous system is aimed at maintaining the organism in a constant state of equilibrium or homeostasis. The internal affairs of the organism are controlled by the autonomic system. While the parasympathetic is more explicitly concerned with conservation and upbuilding, the sympathetic has as its main duty the regulation of internal vegetative functions in relation to external activities. Thus the sympathetic prepares the body for fright or flight and the parasympathetic for withdrawal from outwardly directed activity. Normally these changes are only temporary and as soon as the exciting stimulus ceases to operate the body regains its normal balance, but, where emotional tensions persist, it may remain chronically under the exaggerated influence of either the sympathetic or the parasympathetic. In this case the normal balance is disturbed and various physical symptoms are produced, chiefly of a spasmodic character.

CONVERSION HYSTERIA

The second type of mechanism that operates in emotional disturbances is by way of the muscles normally controlled by the will and in sense perceptions. This mechanism operates in so-called hysterical patients. The motivating psychological impulse is unconscious as in the autonomic disturbances but the symptoms produced are similar in nature to activities that result from stimulation of the voluntary muscles. A symptom of this kind permits the patient to escape from distressing feelings or a disturbing situation. The patient therefore is relieved from anxiety and often shows a surprising serenity in spite of the disability from which he suffers. These reactions are called conversion hysteria. They are usually privative in nature—such as loss of sensation to touch or prick or any external painful stimulus, functional aphonia, loss of sight, loss of the use of a limb, and so on—as are many of the mental symptoms including loss of memory or of consciousness. Sometimes a spasm of voluntary muscle occurs, for example, torticollis. Hysterical conversion symptoms are often highly dramatic. A young Franciscan priest wished to live the contemplative life but had a beautiful voice and his superior wanted him to sing and teach in the choir. He developed an aphonia whenever he was called upon to do this. Again, a little boy whose mother was ill and could not cope with her large family was going to stay with his grandmother of whom he was afraid. He developed paralysis of both legs so that he quite literally could not go. Another illustration was the case of a young man who was about to be married to a somewhat masterful young woman and developed a partial loss of memory. One of the things he forgot was his fiancée.

Since hysterical symptoms provide such a perfect alibi, it is easy to believe that patients are producing them purposely or malingering, but we must always remember that this is not the case and that they are quite as unconsciously produced and out of the patients' control as are the autonomic disturbances caused by anxiety. Indeed it depends very much on the individual which type of symptom will occur in any given situation, and it is not uncommon to find a combination of both. To arrive at a differential diagnosis between hysterical, autonomic, functional, and organic symptoms is one of the greatest difficulties in medical practice, and that is why it is vital to take into account the personality of the patient and always to remember also that both functional and organic disease can exist in the same person at the same time.

CASE HISTORIES

The following are interesting examples of psychosomatic disorders involving autonomic mechanisms and resulting in disturbances of visceral functions.

A young man volunteered for the army and was trained as a commando. He was doing well until he was put under an extremely bullying sergeant. He then developed cardiac symptoms that were diagnosed as disordered action of the heart, and he was discharged as a neurotic. For two years after discharge he remained in bed almost continuously and regarded himself as a lifelong invalid. He needed a long period of psychological treatment to be reas-

sured. While he was receiving it, he developed a large number of functional symptoms relating to various parts of the body, which made him fear that he would have a stroke or develop cancer or die suddenly. However, he had the courage to cooperate in his treatment, made a good recovery, and is now the owner and operator of a fleet of taxicabs.

It is quite certain that if the psychological factors in this case had not been properly dealt with he would have remained a lifelong invalid.

A man of 55 had been suffering for some time from "indigestion" but had managed to carry on his work as a draughtsman in a motor firm. He suddenly had a severe hemorrhage from a ruptured duodenal ulcer from which he nearly died. His emotional reactions were investigated and it was found that for the last two years he had been working under a very dominating man who was jealous of him and tried to humiliate him in every way.

This case is interesting in that after discussing the situation and realizing his own reactions to it he was able to carry on under this same man without any recurrence of his anxiety or physical symptoms.

The difference between the last two cases provides a striking example of the importance of dealing with the patient's emotional disturbances at the earliest possible moment. In the second case less than an hour's discussion sufficed to put the patient on his feet and keep him there. In the first, after the neurotic condition had become fully established, two years of specialized psychotherapeutic treatment were required.

On the other hand, an example of the danger of assuming conditions to be psychogenic without adequate investigation is provided by a woman who was referred by her general practitioner as a case of neurosis because she was suffering from headaches, dizziness, and general lassitude. The doctor said that the case was not urgent, but fortunately she was given an early appointment. On investigation a cerebral tumor was found to be present and she was dead within 10 days. The doctor had been misled by the fact that she had always been what he regarded as a neurotic personality and this had prejudiced his outlook.

A constitutional skin disease such as psoriasis is very liable to be exacerbated by emotional disturbances. The former chairman of a government department always had an exacerbation when he was faced with any special problem or difficulty. It never occurred to anyone to suggest that he should have some treatment for his tendency to develop an anxiety state and for his overconscientious attitude to life, yet this would probably have helped him to avoid recurrences of his psoriasis. Eczema and pruritis, too, as is well known, are skin conditions that are particularly sensitive to any kind of emotional disturbance involving anxiety. A psychiatric social worker in one of the big London hospitals who was also overconscientious and of a touchy and difficult temperament developed a severe attack of asthma usually followed by bronchitis whenever she had had an upset with a colleague or a difficult case to handle. For years she had been treated with medicaments but it was not until her psychological reactions were dealt with that she ceased to have violent attacks necessitating many months of sick leave.

Most family doctors are familiar with the patients who turn up at intervals saying that they feel as if they are going to collapse or have what they call "blackouts." Physical investigation fails to reveal any demonstrable lesion but psychological investigation at once establishes that these sensations are due to a feeling of inadequacy or insecurity. Most commonly they occur when the patient, usually a woman, is waiting in a shop queue or when she is out alone. The prescription of sedatives or sleeping medicine without finding out the basis of her trouble is worse than useless as she gets no better and becomes more and more convinced that she has some serious disorder that the doctor is unable to diagnose.

A number of men develop anginal attacks when they are faced with any special worry or anxiety. This is particularly true of men in executive or high administrative posts. In some cases the electrocardiogram will show a definite lesion but in many no lesion is found. The condition, however, is a serious one whether it is likely to lead to an organic anginal attack that will seriously damage the heart muscles or whether the recurrent pain keeps the patient in a state of constant fear and tension. In these, as in all other psychosomatic cases, a vicious circle rapidly develops. Anxiety and tension produce bodily symptoms. The bodily symptoms are an added source of anxiety and tension to the patient so that the symptoms increase. The bodily functions are kept in a chronic state of disequilibrium that in many cases leads to organic lesions.

CONCLUSION

We have ample evidence that psychosomatic disorders and stress diseases are rapidly on the increase—no doubt partly owing to the increased pressure of the modern world, as the incidence is especially high in countries that are rapidly becoming industrialized. In view of this, it is obvious that the role of the doctor is changing. Merely telling patients that there is nothing wrong and giving them a course of sedatives or advising them not to think about their symptoms, to pull themselves together, or to "snap out of it" is as serious a form of malpractice as ignoring evidence of a grave organic condition. Far from having nothing the matter with him, the patient with no demonstrable physical disorder who says that he is feeling ill has a very great deal wrong and merely to ignore it or tell the patient that he himself must cope with it without psychological help is both dangerous and indefensible.

Time is the major problem for the doctor of today and tomorrow. If he is to help the patient with his emotional problems it is a basic necessity to listen with a receptive ear, and this, since it is both preventive and curative, is clearly the most economic way in which a doctor can spend time. In this country, however, it will not be easy to provide adequate facilities. It will involve paying the doctor more per capita so that he will not need to have as many patients on his list and can give adequate personal attention to those who need it. Nevertheless it is certain that the incidence of illness and invalidism of a psychosomatic character will rise progressively and rapidly until we are sooner or later compelled to take action in the interests not only of the individual patient but also of the community as a whole.

Cost of Mental Illness

The annual cost of mental illness totals approximately 2 billion dollars plus the incalculable losses to industry from illnesses with a psychologic component. The cost of care and treatment for each patient in a public mental hospital per year is estimated at $1,327.51 or $3.64 per patient day. This cost has increased about 11 per cent since 1956. Despite the enormity of the problem, however, only about $29,484,863 is being spent annually for research—the smallest amount for research in any medical specialty.

Women More Prone to Rheumatic Disease

Women are far more prone to rheumatic disease than men, according to the publication "*Patterns of Disease.*" Two out of every 3 persons affected by the disease are women. Moreover, the incidence among women is higher in all forms of rheumatic disease except rheumatic heart disease and rheumatic fever with heart involvement.

Microfilm Readers Available to Victims of Paralysis

A number of microfilm readers especially intended for victims of paralysis are being made available by the Hospital Libraries Committee of the Belgian Red Cross to institutions in Belgium. The apparatus enables the paralyzed person to read individually and independently. (UNESCO)

Sanitation in Patient-Care Areas

Ruth B. Kundsin, Sc.D.

EVERY HOSPITALIZED PATIENT has a right to a hygienic environment. While the most recent scientific methods are carefully utilized in diagnosis and therapy, little science or logic is employed in hospital sanitation. A patient with an infection completely contaminates his environment with pathogens. Conventional methods of floor care, careless handling of soiled linen, refuse, excretions, inadequate ventilation, and air conditioning all serve to spread these pathogens throughout the hospital.

Bacterial fall-out resulting from commonplace hospital activities has been studied and is shown in table I. The fall-out represents the number of bacteria-carrying particles that settle during one minute over 1 sq. ft. of horizontal surface area. When this number is multiplied by 1,440 to approximate the total fall-out over a 24 hour period, and it is realized that each particle represents an aggregate of organisms, some concept can be formed of the bacterial accumulations on hospital floors, shelves, and ledges. Unless steps are taken to destroy these organisms, air currents and poor cleaning techniques will resuspend them and distribute them to other hospital areas.

Two methods of attack are suggested: (1) to decrease fall-out by careful re-evaluation of activities, and (2) to destroy bacteria that have been deposited.

Conventional cleaning methods using a nondescript soap and water in a mop pail have been studied. Counts of the bacterial population of the floor can be shown to increase as washing progresses. In an operating room at the start of mopping, 20 organisms were found per square centimeter. As the washing progressed, the bacterial count rose until, at the conclusion, 3,100 organisms were recovered per square centimeter. If the wet mop is left in the dirty water in the mop pail overnight, the combined dirt, dust, blood, and pus yield a bacterial count comparable to that of a 24 hour broth culture.

A floor flooding technique has been developed at the Peter Bent Brigham Hospital, Boston, under the direction of Dr. Carl W. Walter, which has served to reduce bacterial counts on operating room floors to 5 or less organisms per square centimeter and on ward floors to 10 or less organisms per square centimeter. This technique consists of the following steps: 1. All furniture is removed from the room. 2. Trash and debris are picked up with a water trap or cyclonic separator vacuum cleaner. 3. A germicidal detergent solution is freshly made up in a clean 12 qt. pail. The formulation should contain either a quarternary, phenolic, or iodophor in sufficient concentration to be bactericidal on the floor to be cleaned. This concentration must be determined by experiment followed by bacteriological testing. 4. Open shelves, moldings, window sills, overhead lights, furniture, and other horizontal surfaces are wiped with a clean cloth wrung out of the germicidal detergent solution. 5. One quart of the solution is spilled over the area of the floor likely to have been soiled with blood, pus, or amniotic fluid. 6. The contaminated area is scrubbed with a clean wedge-shaped 3 in. cotton string mop to loosen the soil. 7. The remaining 11 qt. of germicidal detergent are spilled on the scrubbed area and spread to the periphery of the room. This exposes the area of maximal contamination to effective concentrations of germicide. The cove is scrubbed with the mop as the cleaning solution is spread to the periphery of the floor. 8. The solution is then removed with a wet-pickup vacuum cleaner.

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TABLE I

Bacterial Fall-Out in Various Hospital Areas

Location	Fall-Out of Bacteria-Laden Particles/ Sq. Ft./Min.
Laundry	
Sorting area	300
Other areas	9
Ward (14-bed)	
During bedmaking	50-260
No activity	15-50
Trash collection	42-120
Laundry collection	180-480
Isolation room	
Air conditioning	2
Fan pulling in outside air	4
Fan exhausting room air	6
Operating room	
Hospital A	7-10
Hospital B	7
Hospital C	2-5
Isolated specialty operating room A	61-92
Isolated specialty operating room B	12-37
Room of carrier (intern) of *Staphylococcus aureus* phage type 77	5-63

This is begun at the door so that the hose and vacuum cleaner remain clean and dry. 9. A puddle of germicidal detergent is deliberately left across the doorway so that the casters of the furniture are wetted as the furniture is replaced.

The advantages of this method are: freshly made-up germicidal detergent contacts the floor leaving a bacteriologically as well as grossly clean surface and, of necessity, the whole floor is cleaned as the wet-pickup leaves a dry area of demarcation as the solution is removed.

A deep-seated prejudice against the use of vacuum cleaners exists in the minds of hospital personnel. Our studies have demonstrated a statistically significant reduction in floor organisms with the use of a well-designed water trap or cyclonic machine. Proper direction and diffusion of effluent air does not whisk bacteria from the floor. We have not found air volume counts of bacteria to rise upon use of such a machine. A well-designed vacuum cleaner is therefore our recommendation as a substitute for all dry mopping and dry sweeping procedures.

RECOMMENDATIONS

1. Personnel trained and equipped with properly designed machines should clean all patient-care areas.

2. Informed supervision is essential to enforce proper use of cleaning materials and equipment.

3. Cleaning time must be scheduled and respected as an integral part of patient care.

4. Bacteriological monitoring should be instituted.

5. Floors should be disinfected by the wet-pickup technique on the following schedule: daily disinfection—corridors, delivery room, dressing room, emergency ward, isolation room, nursery, pediatric ward, and utility room; weekly disinfection—medical ward and surgical ward; and terminal disinfection—autopsy room, single room, maternity ward, and operating room.

6. Vacuum cleaners must be used in place of mops, brushes, and brooms in daily care of floors between periodic disinfection by wet-pickup procedure.

7. Hospital procedures should be evaluated with the objective of decreasing the bacterial fall-out.

Figures on Hospital Assets

The total value of the buildings, equipment, and other assets of hospitals in this country is now 13 billion dollars, Health Information Foundation reports. This is the equivalent of $8,100 per hospital bed, $590 per hospital admission, or $78 per person in the United States.

Private nonprofit hospitals in this country have an average of more than $14,000 in assets per bed, according to Health Information Foundation. Comparable figures are $10,000 for Federal hospitals; $5,000 for nonfederal government hospitals; and $4,300 for proprietary hospitals.

SPECIAL ARTICLE

Health in the Soviet Union

A U. S. PUBLIC HEALTH MISSION of five American physicians toured the Soviet Union from Aug. 13 to Sept. 14, 1957. Members of the Mission were Thomas Parran, Chairman, Otis L. Anderson, Henry van Zile Hyde, Malcolm Merrill, and Leonid S. Snegireff. This article is composed of material from the report published by the U.S. Public Health Service on the Mission.

PUBLIC HEALTH

Philosophy. The Soviet worker is considered a "fund of gold" for the country; therefore, such slogans as "Everything for the health of the working class" have real meaning. In the words of Lenin, ". . . . Manpower is just one of the resources that is being bloated to the maximum possible efficiency to the building of the Soviet State and promotion of Communism." Efficient use and conservation of this resource being the prime motivation for Soviet public health, preventive medicine is of greatest concern.

The Soviet Constitution entitles workers to free medical service, social insurance, a network of sanatoriums and health resorts, annual vacations, rest homes, and other benefits. Also provided by the Government are Houses of Health Education, with easy-to-understand exhibits on health and sanitation; increases in pay and reduction of hours for workers on strenuous or dangerous jobs; generous maternity arrangements for working mothers; and nurseries for preschool children.

Health education sometimes serves as political "education" as well: posters show U.S. Negro workers overloaded with bales of cotton or show smog-filled U.S. cities, and alcoholism is pictured solely as an effect of capitalism.

Administration. Health, like political administration, is centrally controlled. Geographical divisions are the same for health administration as for political: the republics forming the Soviet Union are divided into "oblasts," which in turn are divided into "rayons." Each rayon has a population of 40,000 and may take in an entire town, part of a city, or several collective farms. The ultimate administrative unit is the "uchastok," 10 of which make up a rayon. On each administrative level, the health department or ministry is responsible not only to the superior health authorities but to the political authority at the same administrative level.

In matters of sanitation and hygiene, the Union Ministry of Health in Moscow exercises control over even the smallest collective farm. Every construction—"from the largest hydroelectric power station to a cinema," as one high Ministry official put it—must be approved by the Ministry. The Ministry of Health theoretically controls and directs all medical practice and facilities, all medical and paramedical education, and production and distribution of all medical supplies. However, the trend appears to be toward decentralization of administrative control, and there are already a few exceptions to the previous rule.

The Ministry of Health sets standards for all health services, but provision and operation of the services is the responsibility of the industry concerned. For example, health facilities for railway workers, which are found even in the remotest regions of Siberia, are provided by the Union Ministry of Railways.

The budget of the Ministry of Health in 1956 represented 6 per cent of the total budget of the Soviet Union. Allocations are made in four areas: (1) treatment and preventive services, (2) child care, (3) hygiene–epidemiologic services, including health education, and (4) medical education and research.

The well-known "five year plans" for So-

viet progress in all fields cover medicine and public health, and, in general, the goals set in the health fields seem to have been achieved. Currently, a "15 year plan" for 1961-1975 is being prepared for the control of heart disease and cancer.

Approaches and Current Problems. There appear to be three main approaches to the problems of public health: (1) blitzing of infectious diseases (such as malaria, typhus, smallpox, and cholera), with visible success; (2) creation of specialized services for control of more resistant infectious diseases; and (3) creation of a continuing basic health structure with less centralized control.

The problems currently of most concern to the Ministry of Health—enteric disease, tuberculosis, upper respiratory infections, and so on—are closely related to the prevalent overcrowded housing and attendant inadequacies in sanitary facilities.

Sanitary-Epidemiologic Stations. Because of the need for control of epidemic disease, the sanitary-epidemiologic stations, under the Ministry of Health, are at present especially important to the health of the nation. They are concerned with local aspects of sanitation, immunization, and medical statistics, and with research and health education. There are about 2,600 stations, manned by approximately 1 physician per 10,000 population. The Central Moscow Station, one of two visited by the Mission, has 25 rayons under its jurisdiction. Among its functions are: (1) control of communicable diseases, (2) the formulation and enforcement of sanitary regulations, and (3) general improvement of the physical environment of Moscow (the recommendation of the Station for electrification of all city buses, for example, was being effected when the Mission was in Moscow).

Data on the prevalence of communicable diseases are considered highly confidential and are treated as classified material.

Laboratory facilities and equipment in the sanitary-epidemiologic stations visited were inadequate; nonetheless, the Mission was told, and it genuinely gained the impression, that health conditions and services were improving each year.

MEDICAL SERVICES

Although the quality of medical care is generally below that of the United States, it is in most cases available to the worker without direct cost. Outpatient medication generally is not free, but drugs and eyeglasses, for example, are available at State dispensaries at low rates. Likewise, judging by U.S. standards, the hospitals visited by the Mission were for the most part poorly planned and constructed and inadequately equipped and maintained; yet, the number of hospital beds per population is greater than in the United States and the next five year plan calls for more. The Mission was told that there were 10 or 11 general and specialized hospital beds per 1,000 persons; in the United States, in 1957, there were 9.2 hospital beds of all types per 1,000 population.

Most health services are administered on the rayon level. A typical urban rayon has a cluster of hospitals—general, maternal, and pediatric—with a combined outpatient clinic, plus scattered pharmacies and additional services for children of school and preschool age. In addition, there are usually city-wide health and health education facilities, to wit: sanitary-epidemiologic station, psychiatric and specialized hospitals, blood center, home for aged and infirm persons, subprofessional medical school, and sports center. At railway and industrial centers there are additional health services.

In the rural rayon, which is generally composed of a number of collective farms, there is one large hospital and clinic for all types of care, which serves as the base for all medical services on the collective farms. These include nurseries, first-aid stations, and maternity staff and facilities. The rayon's sanitary-epidemiologic station is a separate entity both physically and administratively.

Physicians, however, in both rural and urban rayons are appointed by the Union Ministry of Health to specific uchastoks, and treat patients not only in hospitals and clinics but in their homes. This system and the government policy of encouraging young unmarried physicians to settle in the region where they are first sent are large factors in the development of good physician-patient relationships.

Tuberculosis. There are many active cases of tuberculosis. In one hospital for victims of bone tuberculosis, approximately 500 of the 525 beds (250 of which were for children) were occupied. Control of the disease is being sought through the extensive use of streptomycin, PAS, and isonicotinic acid, and through immunization with BCG vaccine at

birth and at 2 and 7 years of age. The better nourishment of the younger generation is also expected to decrease the incidence of tuberculosis.

Obstetrics. Typical of Soviet obstetric hospitals was the one visited by the Mission in Frunze. The staff consists of the following: 24 physicians qualified in obstetrics and gynecology; 1 roentgenologist; 1 internist; 1 physician in charge of the laboratory; and subprofessional personnel of 40 "feldschers," 60 practical nurses, and 24 maintenance and clerical workers. Consultation is available from a nearby general hospital.

The services of the 150-bed hospital are organized as follows: (1) complicated obstetric section, (2) uncomplicated obstetric section, (3) conservative gynecologic section, (4) operative gynecologic section, (5) newborn infants' section, and (6) children's section.

Two prenatal visits a month are required of expectant mothers, in the course of which they are mentally prepared for childbirth without anesthesia through a series of lectures, films, and tours of the hospital. The number of infants delivered without anesthesia is impressed on them. (The Mission was told that the percentage of infants so delivered was 68.) In the month before delivery, a medical sister visits the home to check the environment and to instruct the mother in home care. Breast feeding is stressed and almost all infants are fed by breast. The average hospital stay is 10 day for primiparas and 8 days for multiparas.

At present, abortion is legal, but patients are charged for hospitalization and services. In 1956, of the 4,103 admissions to the Frunze maternity hospital, about 1,305 were for abortions. An additional 120 admissions, approximately, were for complications following abortion elsewhere. In Soviet times abortions were first legal, later illegal. Under the present policy of legalized abortion, the director of the hospital stated that the total number has decreased.

As the hospital keeps no records of marital status, it was impossible to obtain statistics on illegitimate births.

Prevention of pregnancy is stressed through lectures, films, and pamphlets. Information on contraception is available on request, and contraceptive devices may be purchased from pharmacies on a physician's prescription.

Industrial Health. Workers are served day and night by special facilities in industrial areas; rest homes are provided for them by the trade unions; and facilities are available for their children.

The medical services for workers alone, at an automobile plant in Moscow, include a 100-bed general hospital, a general clinic, a night sanatorium, a 100-bed tuberculosis sanatorium, and 18 medical or first-aid stations throughout the factory area. The night sanatorium provides services for workers who require rest, special diets, and general medical observation either because of some continuing medical condition or because of convalescence from illness. Patients at the night sanatorium may work part-time or full-time, depending on their physical condition.

The first-aid stations are staffed by feldschers under a physician's supervision, as they are in rural rayons. Efficiency of the medical stations is measured by workers' absences due to illness and by whether or not the factory fulfills its production quota. If the stations seem to be inefficient, a study is made, and the physician in charge must account for his program. Before the Mission arrived in Moscow, for example, there had been an epidemic of "grippe" among the workers. A survey found that too much attention had been paid to therapy and that, in the future, the physician should stress preventive services and health education.

If a worker becomes ill at home, he is attended by the rayon physician, whose services to the patient are co-ordinated with those of the factory physician.

Rest Homes and Sanatoriums. At the Institute of Balneology and Physiotherapy in Tashkent, as at other such institutes, patients with medical, psychological, and gynecologic problems are treated with hot springs and mineral water baths. Psychological conditions and hypertension are treated with the H-A-I principle—hydro-aero-ionization—in which a mist of negatively charged water droplets is inhaled by patients sitting around a well-like area.

Mental Illness. Although a resolution to form a mental health institute was adopted by the Academy of Medical Sciences in 1957, the Mission generally received the impression that mental disease was not of great concern in the U.S.S.R. However, the problem of alcoholism, at least, was quite evident on the streets of larger cities, despite the linking of this disease with capitalism in the exhibits at the houses of health education.

GENERAL HEALTH

In its quantitative approach to the problems of public health, the Soviet Union appears to have been highly successful in bringing infectious disease under control and in giving basic medical and public health services to the masses of people. The future workers and administrators are already benefiting from this: in all its travels, the Mission saw only robust, vigorous, well-cared-for children.

The peoples of the four Central Asian republics visited by the Mission—Uzbek, Tadzhik, Kazakh, and Khirgiz—are closely related to their neighbors on the Afghanistan-Chinese border in appearance, custom, culture, and language. However, in medical care, they far surpass their neighbors; their hospitals, houses of health education, dispensaries and clinics, first-aid stations, and so on—all flower-bedecked and heavily staffed—serve as contrasting examples of organized State medical care.

MEDICAL PROFESSIONS

Physicians. Physicians in the Soviet Union are of middle rank in an official hierarchy that ranges from feldschers—subprofessional medical workers with at least two years of technical training—to Doctors of Medical Science, who hold the highest academic and administrative positions in the field. Almost 75 per cent of the 325,000 physicians in the Soviet Union are women; the percentage in the United States is about 5.5. The Soviet ratio of physicians to population, about 1 to 613, compares favorably with that of the United States—about 1 to 733 in 1955. However, in judging Soviet statistics it is well to remember that they are based on a census taken in 1939.

As the Soviet worker is considered a national resource, the Soviet physician is considered less a builder of national health than a special technician who may service and/or salvage useful manpower. He has a lower status, salary, and standard of living than the Soviet engineer, although he spends more time in training for his profession. The Mission felt, however, that most physicians were dedicated to the job and to their patients.

Not all physicians in the Soviet Union are "doctors." The degree of "Doctor of Medical Science" is granted only after years of graduate training and may be sought only by especially selected physicians.

Choice of location by the new physician is limited by positions available; the dean or a faculty member of the National Medical Institute determines through interviews with senior students the most suitable individuals for the various openings. Unmarried students are generally assigned to remote and less populated areas in the hope that they will marry someone from that region and settle there. Students who graduate with honors and husband-and-wife teams, however, are said to be given their choice of assignment, and the most promising graduates are encouraged to continue their training and obtain progressively higher positions in the medical hierarchy.

After the initial three years of practice in a prescribed location, an individual who wishes to transfer is ordinarily allowed to do so; if her services are difficult or impossible to replace, however, an increased salary and other benefits may be offered to induce her to remain.

The salary of the Soviet physician normally increases by regular amounts at regular intervals. If she remains in straight clinical practice, her salary 15 years after graduation is normally about one and a half times her starting salary. Textbooks or articles published bring bonuses, as do the "Mastery of the Art" degrees granted to those who work faithfully and avoid professional and political controversy for a given number of years. Membership in the Academy of Medical Sciences and doctorates of medical science entitle holders to additional stipends.

Health facilities appeared to be overstaffed at most levels, yet Soviet physicians generally do their own clerical and secretarial work, routine laboratory work, and such statistical work as is done. Typewriters were not seen in hospitals, and appeared to be quite scarce in the ministries of health in the republics visited. All physicians have training in sanitation and health education, and each spends at least four hours a month teaching health education.

In large cities and resort areas, especially, some physicians engage in specialty practice—otolaryngology, gynecology, and venereology—after working hours. Some homeopathic physicians also maintain private practices. The total number of medical specialists, 269,734, has more than doubled since 1940.

Subprofessional Workers. Ancillary personnel in the Soviet Union include feldschers, feldscher-midwives, midwives, medical aides,

laboratory assistants, and assistants in the fields of roentgenography, dentistry, sanitation, and epidemiology.

Feldschers generally work under a physician's supervision. Until recently they received minimal schooling of only 9 years, 7 of which were in basic education; today they are expected to study 13 years, 10 in basic education and the remaining 3 in a subprofessional medical school. However, as priority is still being given to quantity rather than quality, the higher standard is being achieved slowly.

In the U.S.S.R. there is no equivalent to the American registered nurse. Nurses receive a total of from 9 to 12 years of formal education, including specialized training, and serve only as practical nurses. Better training of feldschers is currently being emphasized as the answer to the need for skilled medical workers.

MEDICAL EDUCATION

Under the Communist system, medical education has withdrawn from the formerly traditional university setting. At the medical teaching institutes, which replaced the colleges of medicine, both political philosophy and political economy are among the required courses during the six years of training. The examination in these subjects determines the class standing of the medical student. Both premedical and medical subjects are taught in didactic fashion through lectures and laboratory demonstrations conducted by the staff. After six years in a medical institute, the Soviet trainee graduates with a diploma of "physician." Postgraduate internship is not required; fifth year clinical clerkships and senior year internships are considered sufficient preparation. Thus, after a total of 16 years of education, and at the age of about 23, the new physician is eligible to practice.

Postgraduate medical education is encouraged. The Mission visited the public health section of the Institute for the Advanced Training of Physicians in Leningrad. Although this was supposed to be the equivalent of U.S. schools of public health, the teaching level was more appropriate to the training of technicians. Facilities were severely limited, and it could not be determined that any research was being carried out.

Medical education is normally free. Students receive basic subsidies for room, board, and laundry—unless they come from high-salaried parents, in which case they are expected to pay all or a share of the student's maintenance. Admission is usually by examination and is sometimes weighted in favor of local residents.

Almost everywhere facilities were overcrowded and even in the better institutes teaching appeared to be largely by demonstration. Little or no provision was made for individual student work areas, and hospitals associated with teaching institutes usually had too few patients for high-quality medical teaching.

Training of ancillary personnel is carried out in "medium medical schools" and through night and correspondence courses.

In the Soviet Union, training, research, and practice are compartmentalized and unrelated. The preference for quantity over quality results in average training at the level of average, rank-and-file medical artisans.

MEDICAL RESEARCH

Basic medical research in the Soviet Union is, for the most part, planned and carried out by the Academy of Medical Sciences. The Academy maintains 27 research institutes. Problems of research are assigned to the appropriate institute—as new institutes are needed, they are created.

At present, a long-range plan for research during the next 15 years is being formulated and set down. Unless new discoveries radically alter present medical theories and practice, no deviation from this plan is expected. The problems to be worked on include surgery of the lung, heart, major blood vessels, and nervous system; malignant neoplasms; and various public health problems.

"There is no true yardstick for rapid and objective comparison of such diverse entities as American and Russian medicine. Soviet medicine is born of a need to reshape the old Russian Czarist tradition to conform to Communist doctrine and its objectives, and to cope with problems of great magnitude."

(Prepared in the Association office from "The Report of the United States Public Health Mission to the Union of Soviet Socialist Republics," published by the Public Health Service of the U.S. Department of Health, Education, and Welfare, 1959.)

Medical Briefs

RENAL ANGIOGRAPHY FOR HYPERTENSIVE PATIENTS

Three Ohio physicians at the Cleveland Clinic Foundation found renal abnormalities, mainly occlusive renal artery disease, in 83 of 317 selected patients by means of angiography. In 18 of these, both kidneys were affected. At a University of Texas symposium in Galveston in October, 1959, Dr. Harriet P. Dustan presented the findings of a four year study, which she conducted with Drs. Eugene F. Poutasse and Irvine H. Page. Dr. Dustan stated that, when intravenous urography shows abnormalities in the size and function of the kidney, when the cause of hypertension is not known in a person less than 35 years old, when, after pain in the flank signaling renal infarction, hypertension appears or becomes aggravated, and when, in a patient over 60 years of age or in a normotensive one, malignant hypertension develops suddenly, renal angiography should be done.

Reconstructive arterial surgery or partial or total nephrectomy was performed on 59 of the 83 patients reported on by Dr. Dustan. In 31 of these, diastolic and systolic pressures returned to normal; in 7 others, diastolic pressure alone fell.

SUCCESSFUL SYNTHESIS OF COENZYME A

As a climax to seven years of intensive study by Drs. John G. Moffatt and H. Gobind Khorana, British Columbia Research Council, Vancouver, the first successful synthesis of coenzyme A, a substance essential to a wide variety of metabolic processes, was reported to the American Chemical Society. The researchers hope that this synthesis, which resulted when they treated a derivative of one of the adenosine phosphates with pantetheine-4'-phosphate, will make possible synthesis of other vital coenzymes.

ESOPHAGEAL ATRESIA

Surgeons at the University of Michigan Medical Center, Ann Arbor, have successfully carried out more than 200 operations for congenital esophageal atresia. There are several varieties of the abnormality. Most commonly, the upper portion of the esophagus ends in a blind sack and the lower portion (leading to the stomach) grows out of the trachea. Since food cannot reach the stomach, the infant dies of starvation if the disorder goes uncorrected. A more immediate threat is that feedings enter the lungs. If the baby survives strangulation, he then faces complications from pneumonia and exhaustion.

Correction of the disorder requires a three hour operation by a team of six, including doctors, nurses, and anesthetists. If there is too great a gap in the natural esophagus to permit joining its ends together, the surgeon must form the connection by transplanting a portion of the patient's own intestine. This requires a second operation when the child is 2 or 3 years old. Intensive nursing care of the infant is needed after the esophageal operation. He is placed in an oxygen tent and treated with antibiotics for five or six days. About a week after the operation, the infant can begin normal feeding.

MORE CASES OF DIPHTHERIA, INFECTIOUS HEPATITIS, POLIOMYELITIS, AND MENINGITIS IN 1959

The number of reported cases of diphtheria, infectious hepatitis, poliomyelitis, and certain forms of meningitis was considerably higher during the first quarter of 1959 than during the same period in 1958, according to figures cited by Dr. Paul C. Dauer of the Public Health Service. There were 7,143 cases of hepatitis, (4,270 cases in 1958); 259 cases of diphtheria (205 in 1958); 833 cases of meningitis other than meningococcic infections(681 in 1958); and 298 cases of poliomyelitis (205 in 1958). A 60 per cent increase in paralytic poliomyelitis was reported, and about 52 per cent of the total reported in 1959 were paralytic cases.

INFLUENZA VACCINE

The U.S. Navy and Public Health Service have announced that results of trials in Naval recruits indicate 83 per cent effectiveness of a commercially prepared vaccine against Asian influenza.

President's Message

A few months ago I was asked by a medical friend in New York for the name of a woman obstetrician in Los Angeles as she had a patient moving to that area. I had only my Oregon state directory, which of course could not help with the registrants in California, and the copy of the last AMWA directory, which, alas, was six years old and very battered with use. A hurried call to the medical school library helped me secure the information and the next day it flew back across the country. But I have thought many times since how valuable it would be to have on the desk of every AMWA member a compact, up-to-date directory.

There are three bodies that must move to bring such a hope to fruition. Steps have already been taken by the Finance Committee and the Executive Board to authorize the expenditure for this item. Our office at 1790 Broadway, New York City, is working on the names of members, their addresses, dates of graduation, and specialties, and will soon have a complete system in operation, the final step before the directory itself. But this needs the cooperation of every branch and every member—in fact, to make it truly worth while, it should include every medical woman practicing in the United States. What a challenge for your branch to build up its membership!

Only today a new patient came to my office, having picked my name from the telephone book. She was insistent upon seeing "only a lady physician." As her condition required another type of specialty training, I again scanned the pages of my old directory—but in vain. Even if none of the other reasons mentioned on different occasions for becoming a member of AMWA seemed important, it would appear worth while for purely business reasons.

The fellowship and close acquaintance in local branch meetings brings us knowledge of the personalities and medical skills of those to whom we make referrals. As we work on regional and national committees we find our value as referring physicians increasing. How often we shine in reflected glory when we hear of the successful cure and satisfaction of one of our patients referred to another medical woman!

You will soon receive a request in your local branch for the appointment of a committee to carefully check all the data regarding your members, to ensure an accurate and complete directory. Will you urge your committee to call the other women physicians in your area to see if they would like to be enrolled in the AMWA and consequently in the new directory? We should more than double our membership while getting out the directory of women physicians of AMWA for 1960. And through mutual respect and knowledge of our women colleagues, we increase the status of all women in medicine.

Your Executive Board asks your aid in the preparation of the most accurate and extensive AMWA directory possible.

Jessie Laird Brodie M.D.

SPECIAL ARTICLE

1960 WHITE HOUSE CONFERENCE

THE GOLDEN ANNIVERSARY White House Conference on Children and Youth will meet from March 27 to April 2. It is interesting, in retrospect, to see how attitudes toward children have changed. In Pre-Renaissance times artists portrayed children as miniature adults. With the Renaissance came the feeling for scientific inquiry, and anatomic differences between adults and children were noted. Several centuries later the Industrial Revolution emerged as a new reality and children, considered a new labor force, worked adults' hours under brutal conditions. The *fin de siecle* anxiety and weariness gradually gave way to a new social awareness, and the problems of children in this country were brought to the fore.

GROWTH OF AN IDEA

As with many achievements now conducted on a grand scale, the White House Conference on Children began with the interest of many and was carried to completion by the strength and perseverance of a few.

One of the pioneers of the project was James E. West, who began life in a Washington, D.C., orphanage. He went on to study law and during President Theodore Roosevelt's administration became Assistant Attorney for the Department of the Interior. In 1908 West became associated with the child rescue campaign being conducted by Theodore Dreiser and his magazine, *The Delineator*, which he served as editor. At the twenty-fifth meeting of the National Home Finding Society in Chicago that year, the need for a greater national effort was stressed. West, who was in attendance at this meeting, later wrote to the President. In October West and Dreiser were invited to the White House to discuss the needs of dependent children. West suggested a national conference to be sponsored by the President and offered to present this idea to him in detail. He then went out to stimulate national leaders in child welfare to join him in proposing the Conference. This proposal was outlined in a letter to the President drafted by West and Dreiser, excerpts from which reveal the prevalent conditions: "The State has dealt generously with her troublesome children; but what is she doing for those who make no trouble but are simply unfortunate? . . . Some are orphans or half-or-

phans, some are abandoned by heartless parents; some are victims of cruelty or neglect . . . every precaution should be taken to prevent neglect, overwork, insufficient education, or inadequate moral and religious training, and that institutions shall be carried on so as to secure the best physical, mental, moral and religious training of each individual child. . . ."

THE CONFERENCES BEGIN

On Christmas Day, 1908, President Roosevelt personally addressed 200 invitations to persons connected with some phase of child welfare. The Conference took place on Jan. 25 and 26, 1909, and the opening session was addressed by the President.

Direct results of the Conference were the establishment of the Children's Bureau, which in turn fostered the first child labor laws, regulations covering orphanages, the establishment of the Child Welfare League of America, and the movement for mothers' pensions. Yet, no one at the time thought to establish a pattern for the Conference.

During the next 10 years women began to step out and organize themselves and, following a feminine bent, worked for their own suffrage and for social progress. Miss Julia Lathrop, first Chief of the Children's Bureau, in 1919, urged the second White House Conference on Children to "set up irreducible minimum standards for health, education, and work of the American child." This conference resulted in the Sheppard-Tower Act, which provided that the Federal Government contribute to the development of better facilities throughout the country for the care of mothers and children during childbearing. The 1919 Conference also established the 10 year pattern that has been since observed.

The 1930 White House Conference on Child Health and Protection was called by President Herbert Hoover. The findings and recommendations—32 volumes—were used as a basis for the section relating to children in the Social Security Act of 1935. A Children's Charter was another result of this Conference, and pediatrics and pediatric education were greatly advanced.

In 1940 President Franklin D. Roosevelt called the 1940 White House Conference on Children in a Democracy that led to strengthening of personnel and training standards in equipping American children "for the successful practice of democracy."

The 1950 Mid-Century Conference reflected the changes in thinking that had overtaken our country. Considering the social legislation that had resulted from previous conferences and the depression, and the comparative health of the nation as a whole, the 1950 Conference, attended by 6,000, stressed the health of the personality.

THE NATION PREPARES

Announcing the Golden Anniversary Conference, President Eisenhower said, "The rapidly changing times in which we live, and the increasingly fast pace of change, make it incumbent upon us to do everything we can to plan ahead and to see that we prepare today's child well, for life in tomorrow's world."

As expressed by the President's National Committee, the purpose of this Conference is "to promote opportunities for children and youth and to realize their full potential for a creative life in freedom and dignity."

In preparation for the Conference, to be attended by 7,000 persons, hundreds of national organizations are gathering material, including a report of activity during the past 10 years and an evaluation of needs for the next 10 years. The Interdepartmental Committee, representing 34 agencies of the Federal Government, will contribute a 1960 edition of the "Chart Book"—a visual presentation of facts and trends involving children in America. This material will be published prior to the opening of the Conference and will be used as a basis for program content and discussions.

Governor-appointed committees in 50 states, Guam, American Samoa, the Virgin Islands, the District of Columbia, and the Commonwealth of Puerto Rico are bound together as the National Council of State Committees. Each state committee will send an official report to the Conference, setting forth the problems, services, achievements, and unmet needs of children and youth.

FORMAT OF THE CONFERENCE

The Conference will open each session with a Theme Assembly to develop themes, issues, and challenges. Forums will include panel presentations and floor discussions. Each person attending the conference will participate in a "workgroup" of not more than 30 members. This is to provide an opportunity for continu-

ous contacts with members and problems. Each group will be a cross section along professional lines: physicians, lawyers, teachers, welfare workers, and others in the specialties directly connected with children will sit down with nonprofessional adults and youth. Close to 1,000 young people over 16 years of age will attend the sessions of the Conference, and 500 international guests will be present at the invitation of the State Department.

Each participant will pay a Conference fee of $20 and will receive all official volumes published before and after the Conference.

THE PROBLEMS

A nationwide survey covering 45 states has reported that prevention and treatment of juvenile delinquency heads a list of 40 major areas of concern. Second in importance is the problem of the emotionally disturbed child, and third is the problem of the retarded child. Other subjects include the religious and spiritual life of children, establishment of values and ideals in children, improvement of the school curriculum, handicapped children, gifted children, employment opportunities for "middle" adolescents, children of working mothers, young unwed mothers, teen-age marriage, problems of minority group children, problems of migrant workers' children, venereal disease in teen-agers, teen-age drinking and driving, and rural-urban migration.

The Conference will be divided into two basic areas—"The World Around the Young," which will represent the external influences that affect young people, and "The Young in the World," which will stress the problems and needs of the individual.

SUGGESTIONS FOR PLANNING

The Government Printing Office has published two handy pamphlets to aid in preparation for the Conference. The first concerns "suggestions to organizations concerned with conference preparation" and is followed by the "Topic Guide." The latter provides six major headings: (1) social, cultural, and economic factors affecting children and youth; (2) youth in society; (3) characteristics and needs of children and youth; (4) education and school services; (5) health, welfare, and vocational services; and (6) legal aspects of situations affecting children and youth.

PERSPECTIVE

Certainly, much has happened since that Christmas Day in 1908. Legislation has relieved most of our population of the horrors of poverty, malnutrition, and inadequate housing. As these problems come under control, the larger picture becomes clearer, and the Conference, as one aspect of the work being done, makes our goals more obvious. It is through our children that we attain immortality, and it is our dream that one day they will go forth in an asmosphere of intellectual and political freedom and create a world for all time.

(Prepared in the Association office with the aid of material published by the White House Conference on Children and Youth, Washington, D.C., 1959).

New Use for Rauwolfia

Thirty years ago Dr. Salimuzzaman Siddiqui, now Director of Pakistan's Council of Scientific and Industrial Research, began to experiment with alkaloids of *Rauwolfia serpentina*, a plant used in India for centuries as a snake-bite remedy. In the meanitime, the plant took on new importance when it was discovered to have tranquilizing properties that could be used with benefit in mental illness. Recently Dr. Siddiqui and Dr. Rolf Deiniger, a young pharmacologist from the University of Munich, sent to Pakistan by UNESCO, succeeded in isolating "serpajmaline" from *Rauwolfia*. It is hoped that this substance may be used in the treatment of high blood pressure without causing the secondary effects of giddiness and symptoms of schizophrenia that occur when the plant is used in its pure form. Tests show that if "serpajmaline" is administered to patients before a surgical operation, it may possibly be of value in forestalling heart stoppages (UNESCO).

Of Special Interest

UNIQUE PREHOSPITAL CARE PROGRAM

A unique program of prehospitalization care and treatment for victims of strokes has been inaugurated by the Jewish Chronic Disease Hospital in Brooklyn, N.Y. The beginning of a five year study of the feasibility of home care for such patients, the program is supported by a grant of $330,000 from the National Institutes of Health. The new service will be offered prior to hospitalization as a possible means of avoiding the need for hospital care.

By starting treatment shortly after the stroke occurs, it is hoped that not only further damage will be prevented but that the patient's condition will improve so that he may live as normally as possible. When adequate medical and social rehabilitation is delayed, even for a short time, the patient's physical and emotional condition generally deteriorates. Such delays are inevitable in many sections of the country, as hospital facilities are fully utilized by individuals requiring seemingly more immediate care. When victims of stroke finally are hospitalized, their care and treatment takes longer than if it had been started soon after the stroke; furthermore, it is less effective.

The advantages of the new program, therefore, may be great in terms of: (1) faster and more complete rehabilitation, (2) reduced cost to patients and hospital, (3) increased number of hospital beds available for patients requiring constant care, and (4) encouragement to other hospitals to initiate similar programs in their communities.

Medical, social, physical, and occupational therapies and nursing and housekeeping services will be made available in relation to the patient's needs. If necessary, other specialists or consultants on the hospital staff will be provided. Mobile units of physical therapy and occupational therapy will be utilized. The patient will be hospitalized for any acute condition that requires it.

NEW COLLEGE COURSE FOR MEDICAL AIDS

The Milwaukee Institute of Technology, in co-operation with the Medical Society of Milwaukee County and the Wisconsin State Medical Assistants Society, is offering for the first time a two year college course designed especially for girls planning to be medical aides. The new program, open to qualified high school students, began in September, 1959, and will lead to a degree of Associate in Applied Science. Students will receive instruction in office skills, general studies, and special technical training.

"TRENDS IN HOSPITAL LIABILITY TO PATIENTS"

Legislators and courts are reducing the immunities once enjoyed by both governmental and charitable hospitals stated Prof. Arthur Southwick of the University of Michigan School of Business Administration at a meeting of the American Business Law Association, held at the University of Utah in August. In the past, courts drew sharper distinctions between various types of working relationships within hospitals. When physicians conducted private practice at an office located in a hospital, for example, the institution would not be held liable for any negligence they might show in handling patients. Today, Southwick continued, "The hospital may not in any real sense control the staff physician or the nurse in their medical activities, yet there may be an imposition of liability for the physician's or nurse's act. The mere payment of a salary (by the hospital) is likely to bring this result by the reasoning of some courts. Control over the physicians' (or other medical personnel's) activities seems to be immaterial in many cases. Some courts ignore both the element of control and the payment of a salary. In essence, these courts maintain liability is determined by what the hospital has led the patient to reasonably believe regarding the status of those providing him treatment."

Federally operated hospitals have been subject to suit since 1945. Approximately one quarter of the states now hold a charitable hospital to be fully liable to patients, whether paying or nonpaying, and to strangers; however, slightly over one third of the states adhere to immunity to all patients, and only a small minority of states follow the rule of total and complete immunity under all facts and circumstances."

Opportunities for Women in Medicine

AWARDS

Films. Cash awards and other prizes will be given at the last session of the Actualités Médico-Chirurgicales at the Nouvelle Faculté de Médecine de Paris on April 5, 1960. Only 16-mm.-size film may be submitted, and the didactic value of the film will be considered along with the cinegraphic quality. Applications and films should be sent to the Secretariat, La Presse Médicale, 120 Boulevard Saint-Germain, Paris IV, France, before Feb. 29.

Psychiatry. The Washington Psychiatric Society is offering an essay prize of $100 to a psychiatric resident. The paper, on any psychiatric topic, must be submitted by March 1 to Dr. Leon Yochelson, Secretary of the Society, Washington, D.C.

COURSES

Radiology. The Department of Industrial Medicine of New York University-Bellevue Medical Center is offering two postgraduate courses this spring: Medical and Public Health Control of Ionizing Radiation, March 7-18, full time, designed especially for public health officials, physicians, and others with biological interests; and Radiation Hygiene Measurements, April 13- May 13, an intensive course including laboratory instruction in surveying, monitoring, and sampling procedures for persons having some acquaintance with nuclear measurement principles. Additional information may be obtained from the Associate Dean, NYU Post-Graduate Medical School, 550 First Ave., New York City 16.

Tufts. Postgraduate courses are being offered in the spring at Tufts University. There will be short courses in pediatrics, March 17-19; hematology, April 7-9; electrocardiography II, April 11-13; and neurology, April 27-30. For further information write Postgraduate Division, Tufts University School of Medicine, 171 Harrison Ave., Boston 11.

FELLOWSHIPS

Arthritis. Fellowships for the clinical study of arthritis and related diseases are being made available to physicians interested in rheumatic diseases who intend to apply this knowledge in clinical service, teaching, or research. Applicants must be U.S. citizens, licensed or eligible for licensure to practice in the United States, with two years of specialty training acceptable to the appropriate American Board (or its equivalent). Fellowships in the amount of $4,500 per year plus $540 for each dependent and a $480 annual increment will be awarded for one year and may be renewed on the approval of the Foundation. The candidate should propose a program of full-time study in a hospital that offers a well-developed program with emphasis on clinical service. For a full academic program, complete tuition and fees are paid; for other programs, a sum not to exceed $1,250 including tuition may be arranged. Application must be made by Feb. 1 to be considered for May 1; Aug. 1 for consideration Nov. 1; and Nov. 1 for consideration Feb. 1, 1961. For further information write to the Division of Scholarships and Fellowships, Department of Professional Education, The National Foundation, 800 Second Ave., New York City 17.

Pediatrics. Pediatric residents who are legal residents of the United States or Canada, who will have completed one year of pediatric training credited by the American Board of Pediatrics by July 1, 1960, and who are in need of financial assistance may apply for 1 of 28 or more fellowships, to be granted by the American Academy of Pediatrics. These grants, which carry a stipend of from $500 to $1,000 each depending on the need and length of time to complete training, were made possible by Mead Johnson and Company and Gerber Baby Food Foundation. Application must be made in a letter by the chief of service, showing the eligibility of the candidate, and by the resident herself, stating her intention to enter pediatric private service at the conclusion of the residency program. Applications should be sent by Feb. 15 to the American Academy of Pediatrics, 1801 Hinman Ave., Evanston, Ill.

MEETINGS

Blood. An international symposium on "The Blood Platelets" will be held at the Henry Ford Hospital, Detroit, March 17-19. For information write to Shirley A. Johnson,

Ph.D., Henry Ford Hospital, 2799 W. Grand Blvd., Detroit 2.

Cancer Research. "Cell Physiology of Neoplasia" will be the subject of the 14th annual symposium on fundamental cancer research, to be held at the University of Texas M.D. Anderson Hospital and Tumor Institute Feb. 25-27. Information may be obtained from the Editorial Office, The University of Texas M.D. Anderson Hospital, Texas Medical Center, Houston 25.

Geriatrics. The 1960 National Health Forum will meet in Miami Beach the week of March 13. The theme is "Health of Older People." For information write the National Health Council, 1790 Broadway, New York City 19.

Medicine. The Alaska State Medical Association will hold its first meeting at Anchorage Feb. 18-20. Details may be obtained by writing to Dr. George Hale, Chairman, 501 "L" St., Anchorage.

Occupational Medicine. The American Academy of Occupational Medicine will meet at the Williamsburg Inn, Williamsburg, Va., Feb. 10-12. For information write to Capt. Lloyd B. Shone, Secretary, Bureau of Medicine and Surgery, Navy Department, Washington 25, D.C.

Ophthalmology. The Institute of Ophthalmology of the Americas will meet Feb. 9-17 at the New York Eye and Ear Infirmary. It will be a post-Pan-American congress and symposia will be held every day from 10 a.m. to noon. The subjects to be discussed are: Cataracts, Retinal Detachment, Muscle Anomalies, Glaucoma, Uveitis, Keratectomies and Keratoplasties, and Pleoptics and Macular Function Testing. Invitations may be obtained by writing to Mrs. Tamar Weber, Registrar, Institute of Ophthalmology of the Americas, New York Eye and Ear Infirmary, 218 Second Ave., New York City 3.

Rhinologic Surgery. A seminar in "Reconstructive Surgery of the Nasal Septum and External Nasal Pyramid" will be held in New Orleans Feb. 10-13. The American Rhinologic Society will cooperate in the presentation of this meeting, which is to be held under the auspices of the Department of Otolaryngology of Louisiana State University Medical School and the Charity Hospital. For details write to Dr. Robert M. Hansen, 1735 Wheeler Ave., Portland 12, Ore.

THESE WERE THE FIRST

DR. MAUD MARY CHADBURN (1868-April, 1957), a graduate in 1903 of the London (Royal Free Hospital) School of Medicine for Women and surgeon for 20 years at the Elizabeth Garrett Anderson Hospital, London, founded the South London Hospital for Women in 1911 and was their first surgeon. In 1928 she was surgeon at the Marie Curie Hospital, which she helped to establish. Dr. Chadburn adopted and educated three children.

DR. ELIZABETH E. CLARK of Harrisburg, Pa., graduated in 1912 from the Woman's Medical College of Pennsylvania and on March 10, 1957, was honored by friends in her city, where she started to practice in 1913. From 1921 to 1929 she served in the Mt. Pocono area as a country doctor, but in 1929 returned to Harrisburg. In 1942 she was instrumental in the operation of the Blessed Martin de Porres House and conducted a "baby clinic" at the Madonna House. Her life has been devoted to community projects and to humanitarian works.

DR. SANIYEH HABBOUB, a graduate in 1931 of the Women's Medical College of Pennsylvania, was the first Moslem woman physician in Syria. She now practices obstetrics in Beirut and is the mother of two daughters.

THE MEDICAL WOMEN'S FEDERATION OF GREAT BRITAIN AND IRELAND, established in 1917, was the first professional organization of registered medical women in the British Isles.

DR. GRACE WOLCOTT of Boston, a graduate in 1884 of the Woman's Medical College of Pennsylvania, studied abroad before returning to practice in Boston, where she assisted in establishing the Trinity Dispensary for Women and was one of the founders of the Vincent Memorial Hospital, where the first evening services were established. After her retirement in 1912, Dr. Wolcott established an occupational camp for nervous patients at Heath, Mass. She died in 1917.

—From the ELIZABETH BASS Collection,
Rudolph Matas Medical Library,
Tulane University, New Orleans.

News of Women in Medicine

Dr. Virginia Apgar of New York City has joined the staff of The National Foundation as chief of the Division of Congential Malformations. She is the creator of the "Apgar score," widely used in hospital delivery rooms in several countries.

The following New York State physicians gave postgraduate lectures in May and June, 1959: Virginia Apgar of Columbia University College of Physicians and Surgeons, New York City, speaking on "Metabolism of the Newborn" at the Columbia-Presbyterian Medical Center; Aldona Baltch of the State University of New York, Syracuse, discussing "Staphylococci Infections" at the Wilson Memorial Hospital, Johnson City; and Anita Bell, affiliated with the New York Psychoanalytic Society, whose topic was "Psychoanalytic Perspectives of Adolescents: Parents and the Adolescent" at the State University of New York, Brooklyn.

Dr. Lillian Lee-ling Chu, an intern at the New England Hospital, Boston, was one of 20 young physicians chosen to benefit under the 1959 program of Mead Johnson Awards for Graduate Training in General Practice; she was awarded $1,000 to help pay expenses of residency training. Dr. Chu plans to remain at the New England Hospital for her residency.

Among the officers of instruction at Montefiore Hospital, New York City, for the year 1959-1960 are the following women physicians: Medical Division, Doris J. W. Escher and Belle E. Jacobson; Pulmonary Division, K. Eileen Hite and Henriette Marcus; and Neoplastic Division, Herta Spencer.

Dr. Joan R. Flynn, a 1959 graduate of Woman's Medical College of Pennsylvania, received a $100 award from AMWA Branch Twenty-Five, Philadelphia, as the best all-around woman student graduating from the four medical schools in Philadelphia—University of Pennsylvania, Temple University, Hahnemann, and WMC.

Dr. Alice Hamilton, honored in February, 1959, by the establishment of a fund for occupational medicine bearing her name, was presented with the coat of arms of the Harvard School of Public Health at a ceremony in honor of her and other distinguished faculty members. An address by Philip Drinker, Ph.D., Professor of Industrial Hygiene at the School, in which he described and praised Dr. Hamilton's part in the growth of industrial medicine as a science, was published in May, 1959, in *Industrial Medicine and Surgery*, a journal that Dr. Hamilton helped to found.

Serving as officers of county medical societies in Georgia are Drs. Katherine Hendry of Blackshear, President, Ware; and Kathryn S. Lovett of Statesboro, Secretary, Bullock-Candler-Evans.

A plaque commemorating Aletta Jacobs, Holland's first woman physician, has been placed on the house where she lived and worked for nearly 20 years. The plaque was financed by the Aletta Jacobs Film Fund when the idea of making a film proved impracticable.

Dr. Elizabeth Kultchar, who graduated in June, 1959, from Woman's Medical College of Pennsylvania, received the $100 Jean Crump Senior Award for Pediatrics for outstanding work in the field.

Dr. Hazel Lin of Jersey City, N.J., won third prize in the 1958 Pageant Press Best Book contest with her novel "The Moon Vow." Dr. Lin, who was born in China, has already had one book published; its title was "The Physicians."

Dr. Maud Loeber of New Orleans has received the Dr. Felix Formento Memorial award of the Louisiana Public Health Association.

At the meeting of the Illinois State Medical Society, Chicago, May, 1959, Dr. Elizabeth A. McGrew, Associate Professor of Pathology at the University of Illinois College of Medicine, Chicago, participated in a panel discussion on "Exfoliative Cytology in Your Practice" in the Section on Pathology. Drs. Priscilla C. Reyes and Ira Rosenthal, also on the staff at the University of Illinois College of Medicine, spoke on "Juvenile Rheumatoid Arthritis—Diagnosis and Treatment" in the Section on Pediatrics. Dr. Claire Ryder, of the U.S. Public Health Service, Washington, D.C., participated in a symposium on "Medical Aspects of Geriatrics" in the General Assembly.

Branch News

Dr. Fern Asma has been appointed by BRANCH TWO, CHICAGO, to serve the Branch as JOURNAL representative.

Dr. Brodie and Dr. Wright in their letters to the branches have urged each branch to make such an appointment.

Dr. Asma is to be congratulated for efficient functioning in her new capacity.

The members of BRANCH TWO, CHICAGO, invited all medical women from foreign countries who attended the International Convention of Medical Education to be their guests at a dinner that was held at the Chicago Yacht Club on Sept. 1, 1959. Among those present were: Dr. Janet Aitken, London, President of the Medical Women's International Association; Dr. Fe del Mundo, Manila, The Phillipines, Vice-President of the MWIA; Dr. Katherine Lloyd-Williams, London, Past President of the British Medical Women's Association; Dr. Carmen de Mejia, Puerto Rico, Past-President of AMWA Branch Thirty-Five; Dr. Jessie Laird Brodie, President of the AMWA; Dr. Jean McIntosh, Birmingham, England; Dr. Mary Esselmont, Aberdeen, Scotland; Dr. Cecilia Williamson, Ipswich, England, and Dr. Ceasaria Aguilar, The Phillipines.

The Branch has announced its program for 1959-1960. Among forthcoming lectures will be: "X-Ray Tour of the Gastrointestinal Tract," "Hemorrhage Complicating Pregnancy," and "Problems of the Chronically Ill." The Annual Meeting will take place May 11, 1960.

BRANCH EIGHTEEN, NEW YORK STATE, met in New York City, Oct. 18, 1959, at the New York Infirmary for a morning business session followed by luncheon. The speaker for the afternoon was Dr. Michael H. K. Irwin, Fellow of the Royal Society of Medicine, London, and Medical Officer of the United Nations. His topic was "The World Health Organization and The United Nations Childrens Fund (WHO and UNICEF)."

Dr. Helen L. Miller invited the group to her home, L'Ecole, Butler, N. J., for cocktails and dinner. The group was entertained with slides and descriptions of Dr. Miller's trip around the world earlier this year. The members of BRANCH FOUR, NEW JERSEY, were guests and participated in the meeting.

BRANCH TWENTY-FIVE, PHILADELPHIA, PENNSYLVANIA, met on Sept. 19, 1959, in the home of Dr. Jean Crump, then President. Dr. E. Cooper Bell, Chairman of the Committee for the Student of the Year, reported that Dr. Jean Flynn, Woman's Medical College of Pennsylvania, was the recipient of the 1959 award.

Dr. Anne Gray Taylor, was selected by the Branch as Medical Woman of the Year and will be presented with a citation at a luncheon during the 1959 Midyear Meeting of the AMWA in Hot Springs, Ark. Dr. Arthurs appointed Branch delegates to attend the 1959 Midyear Meeting.

The Branch decided to devote the time and programs of future meetings to the development of interest related to women in medicine.

Dr. Baumann requested articles for publication in THE JOURNAL and expressed hope of having a Branch Twenty-Five issue early in 1960.

BRANCH FORTY-SEVEN, COLORADO, held a dinner meeting, on Oct. 26, 1959, at the Denver Athletic Club. Women medical students of the University of Colorado School of Medicine were guests of the women physicians. A pleasant dinner preceded the program. Dr. Miriam Benner, President, presented the speakers of the evening. The program was planned to carry out the theme of the "Development of Physicians As Advisers." Dr. Elizabeth Kaho, Executive Director of the Denver Hearing Society, led the presentation of information regarding the aims of the Hearing Society and the facilities available to those with hearing problems. Mrs. Lydia Birkle, audiologist for the Denver Hearing Society, demonstrated the technique of giving hearing tests and interpreted the resulting audiograms. Dr. Will P. Pirkey, otolaryngologist, discussed the etiology and treatment of hearing defects. Miss Lois Field, Principal of Evans School, a school for children with special learning problems, discussed the training of children with hearing loss.

The women physicians and their guests felt that the evening had been pleasant and informative.

MEMORIAL TO
ANNA R. DARROW, M.D.

The people of South Florida, and more particularly our own Broward County Medical Association, have lost one of our pioneer souls with the death on July 22, 1959 of Dr. Anna R. Darrow, more affectionately called "Doc Anner" by her friends and her loyal patients.

Dr. Darrow was born on a farm in Jasper County, Indiana. On her twentieth birthday she married Mr. Charles Darrow and settled down to be a dutiful wife and mother. But she and her husband could not be satisfied with the prosaic life of a store owner and *hausfrau,* and so decided to study medicine together. With little money and much ambition they enrolled in Kirksville School of Osteopathy, Kirksville, Mo., where after two years they graduated, she highest in the class and her husband second highest. They then enrolled in the Chicago College of Medicine and Surgery (later the Loyola School of Medicine and Surgery), practicing osteopathy at night and studying medicine during the day. Graduating with honors in the class of 1909, she took her Florida State Board Examination in 1910 and made the highest mark ever received at that time.

The Darrows moved to Jacksonville, Fla., in 1910 and soon built up a successful practice; however, this was too tame, too much like the storekeepers' life. In 1912 Mr. Henry Flagler asked Dr. Charles Darrow if he would be the district railroad surgeon in the area around Lake Okeechobee. They both jumped at the chance although it promised little except hard living. Dr. Charles preceded Dr. Anna to the Lake and after constructing a makeshift home sent for her. I never heard one word of complaint from her and the only impression I ever received was that this experience was a glorious adventure. It must have been hard on her, for she arrived in the new town of Okeechobee before streets were even laid out and when there were only Indian trails leading into it. There were no conveniences and no comforts. She was two days away from the nearest hospital, and her therapeutic armamentarium consisted of quinine, calomel, and a kit of homeopathic drugs presented to her. Many of the homes she visited were infested with lice and rats, and to get to them she had to battle her way through scrub palmetto and swamps. Often venomous snakes stood in her way.

One vivid experience she immortalized in oil. She was called on a confinement case and while hurrying to the house noticed a hen clucking to her chicks and trying to protect them from something. She looked a little closer and saw a large rattlesnake poised and ready to strike at her. "That Orpington hen sure saved my life that day!" In 1947 she entered her painting of this experience in the Mead Johnson contest at the AMA convention, where the theme for that year was "Devotion Over and Above the Call of Duty." On the left side of the painting is her faithful Model T, with Dr. Darrow rushing on foot to the house. A neighbor woman is standing at the door yelling at her to hurry. Two storks are rushing to the house too, and in Dr. Darrow's path is the large snake and the brave little red hen with her chicks. Dr. Darrow easily won second place and a check for $1,000. The money meant little but the picture was her prize possession. After her death she left it to us, the Broward County Medical Association.

After the untimely death of her beloved husband in 1926, she moved to Fort Lauderdale

where she continued in active practice until 1949. She was active in the affairs of the Broward County Medical Association and was one of the founders of the Broward General Hospital. Many is the medical meeting she enlivened with her keen analysis of the situation and her salty earthy wit. Dr. Darrow was also one of the founders and a charter member of the South Florida branch of the AMWA, and even though retired she was active and interested in it. She belonged to the AMA, Southern Medical Association, Florida Medical Association, and the Broward County Medical Association.

That she will be missed is summed up by one of her loyal patients, an old colored woman: "I loved Doc Anner like she was my own mother." She is survived by her daughter Dorothy of Coral Gables, a son Richard of Tucson, Ariz., and a grandson, Dr. Kent Darrow of Hollywood, Calif.

—Anne M. Hendricks, M. D.

Editor's Note: These reviews represent the individual opinions of the reviewers and not necessarily those of the members of the Editorial Board of the JOURNAL.

TUMORS OF THE LUNG AND MEDIASTINUM. By B. M. Fried, M.D., F.C.C.P., Associate Attending Physician, Montefiore Hospital, and Associate Visiting Physician, Morrisania City Hospital, New York City. Pp. 467, with 235 plates and figures. Price $13.50 (cloth). Lea & Febiger, Philadelphia, 1958.

This volume could more accurately be entitled, "Carcinoma of the Lung and Mediastinum with Differential Diagnoses," since the major portion of the book is devoted to primary lung cancer. The several sections on radiology, radiotherapy, pulmonary function, and surgical treatment are contributed by specialists well known in their fields. Particularly well managed is the discussion of the osteoarticular manifestations in primary carcinoma of the lung, a point in physical and radiologic diagnosis quite often minimized. There is a slight divergence of opinion on the applicability of bronchography in the diagnosis of carcinoma of the lung as expressed by the author and by the radiologist. The technical results with the new medium Dionosil are surely as good if not better than those previously obtained with Lipiodol. The diagnosis of bronchiectasis as a cause of hemoptysis is an important differential to make, and this technique is the best way to do it. In many instances bronchial occlusion caused by a bronchogenic carcinoma can be localized and identified by this method, and, when beyond the reach of a bronchoscope, this is the only means of identification other than surgical intervention.

The diagrams and reproductions of gross and microscopic specimens are excellent, and there are numerous well-chosen reproductions of roentgen-ray studies as well as photographs of patients with typical physical signs to illustrate each of the topics discussed in the volume. The mediastinal lesions are also well illustrated and catalogued. This then is a general textbook on the cause, manifestations, and treatment of tumors of the lung and mediastinum emphasizing early detection and the need of a co-operating team of specialists in diagnosis and treatment.

—Catherine J. Dalton, M.D.

WOMAN'S GUIDE TO BETTER LIVING 52 WEEKS A YEAR: A Practical Guide for Women to Use in Solving Their Special Problems of Life. By John A. Schindler, M.D., Member, Department of Medicine, The Monroe Clinic, Monroe, Wis. Pp. 240, with 8 photographs. Price $4.95. Prentice-Hall, Inc., Englewood Cliffs, N.J., 1957.

I was intrigued by the title of this book. And even in turning the pages I knew it was not "just another book on the emotional problems of women." I scarcely knew what to expect as I skimmed the 10 vivid green introductory pages to find out "Why are so many women failures?" "What is wrong with women?" "What are women's greatest needs?"

It was on the Wisconsin River that this book was born. The author, his wife, formerly a college professor, and their three teen-age daughters had enjoyed four annual canoe pilgrimages, memorable four day October vacations, along its banks. In this setting of solitude, beauty of autumn color, and the companionableness of a brisk campfire, they had found the ideal setting for confidences, discussion, and advice. "How can a woman best manage her life?" was by common agreement made the theme of the family outing.

Out of this collaboration grew a table of 11 measures of a woman's maturity and a chapter regarding each. Appropriate case histories and wholesome advice and suggestions developed by this panel of very normal family members are combined to give the reader assurance of medical accuracy tempered by actual family experience. I found myself reluctant to put it down until I had read the last word.

—Jessie L. Brodie, M.D.

Books Received

The following books have been received for review and are acknowledged in this column. More detailed reviews will be published on books of most interest to our readers and as space permits.

ANATOMY AND PHYSIOLOGY. Vol. 1 (Pp. 332): Cells, Tissues, Integument, Skeletal, Muscular, and Digestive Systems, Blood, Lymph, Circulatory System. Vol. 2 (Pp. 314): Urinary, Respiratory, Nervous Systems, Sensations, Sense Organs, Endocrine and Reproductive Systems. By Edwin B. Steen, Ph.D., Professor of Biology, Western Michigan University, Kalamazoo; and Ashley Montagu, Ph.D. Figures and tables, including a reference table to standard textbooks. Price $2.50 each (paper). Barnes & Noble, Inc., New York, 1959.

ANNUAL EPIDEMIOLOGICAL AND VITAL STATISTICS, 1954. Pp. 570, with illustrations. Price $10.00. World Health Organization, Geneva, Switzerland, 1957.

BASIC AND CLINICAL RESEARCH OF THE NEW ANTIBIOTIC, KANAMYCIN. *Annals of the New York Academy of Sciences*, Vol. 76, Art. 2. Pp. 17-408, with figures and tables. Price $5.00 (paper). The Academy, New York, 1958.

BIOLOGY OF THE TREPONEMATOSES. Based on Studies Carried Out at the International Treponematosis Laboratory Center of The Johns Hopkins University Under the Auspices of the World Health Organization. By Thomas Bourne Turner, Professor of Microbiology, and David H. Hollander, Assistant Professor of Microbiology, Johns Hopkins University, Baltimore. Pp. 278. Price $5.00. World Health Organization, Geneva, Switzerland, 1957.

BIOPHYSICAL SCIENCE. Study Program. Edited by J. L. Oncley and others. Pp. 568. Price $6.50 (cloth). John Wiley & Sons, Inc., New York, 1959.

BLOOD GROUPS. Symposium. *British Medical Bulletin*, Vol. 15, No. 2, May, 1959. Pp. 174, with figures and tables. Price $3.25 (paper). Medical Department, The British Council, London, England, 1959.

BONE TUMORS. Ed. 2. By Louis Lichtenstein, M.D., Chief Pathologist, General Medical and Surgical Hospital, Veterans Administration Center, Los Angeles; Fellow, New York Academy of Medicine; Professor Extraordinario, National University of Mexico; Consultant in Bone Tumors, Tumor Tissue Registry of California Medical Association Cancer Commission; Consultant in Pathology, Los Angeles County Hospital; and Consultant, City of Hope Medical Center. Pp. 402, with 220 illustrations. Price $12.00. The C. V. Mosby Company, St. Louis, 1959.

This edition, appearing six years after the first, adds new illustrations made by the latest methods, and amplifies on points made in the text.

CANADIAN CANCER CONFERENCE. Vol. 3. Proceedings of the Third Canadian Cancer Research Conference, Honey Harbour, Ontario, June 17-21, 1958. Pp. 461, with figures and tables. Price $12.00. Academic Press, New York, 1959.

CARCINOMA OF THE BREAST. By Andrew G. Jessiman, M.D., F.R.C.S., and Francis D. Moore, M.D. Pp. 135, with illustrations. Price $4.00. Little, Brown & Company, Boston, 1956.

CHOLERA. By R. Pollitzer, M.D., George Williams Hooper Foundation, University of California, San Francisco. WHO Monograph Series No. 43. Pp. 1,019. Price $20.00. World Health Organization, Geneva, Switzerland, 1959.

CURRENT VIRUS RESEARCH. Symposium. *British Medical Bulletin*, Vol. 15, No. 3, Sept., 1959. Pp. 175-245, with 8 full-page plates. Price $3.25 (paper). Medical Department, The British Council, London, England, 1959.

This symposium includes reports on adenoviruses, measles, varicella, and trachoma, and on the genetic, biochemical, epidemiological, and epizoological aspects of the subject.

DIABETIC MANUAL: For the Patient. Ed. 10. By Elliott P. Joslin, M.D., Sc.D., Clinical Professor of Medicine, Emeritus, Harvard Medical School, Consulting Physician, Boston City Hospital, and President, Diabetes Foundation, Inc. Pp. 304, with 40 illustrations and 26 tables. Price $3.75. Lea & Febiger, Philadelphia, 1959.

DISTURBANCES OF CELLULAR METABOLISM IN INFANCY. Report of the 32nd Ross Conference on Pediatric Research. Ross Laboratories, Columbus, Ohio, 1959.

This report is a summary of findings in the fields of basic enzyme mechanisms, specific clinical application of defects in enzyme systems, and mechanisms of membrane transport.

DORLAND'S POCKET MEDICAL DICTIONARY. Ed. 20. Abridged from Dorland's Illustrated Medical Dictionary. Pp. 679. Price $4.50 (leather). W. B. Saunders Company, Philadelphia, 1959.

FAMILY MEDICAL ENCYCLOPEDIA: New Standard and Complete Reference Book of Medical Care for the Entire Family. Edited by Justus J. Schifferes, Ph.D., Fellow, American Public Health Association, Director, Health Education Council, Medical Editor and Writer, The National Foundation, Editorial Consultant, Brain Research Foundation and National Health Council; and formerly Managing Editor, *Modern Medicine*; with a medical advisory board of 8 physicians. Pp. 617, with figures. Price $4.95. Little, Brown and Company, Boston, 1959.

501 QUESTIONS AND ANSWERS IN ANATOMY. By Stanley D. Miroyiannis, Ph.D., F.A.A.A.S.,

F.I.A.S., Professor of Anatomy and Chairman of the Department, Still College, Des Moines, Iowa. Pp. 332. Price $5.00. Vantage Press, Inc., New York. 1959.

FOOD AND YOU. By Edmund Sigurd Nasset, Professor of Physiology, School of Medicine and Dentistry, University of Rochester, New York. Pp. 166, with 7 tables. Price $1.25 (paper). Barnes and Noble, Inc., New York, 1958.

HEALTH YEARBOOK 1957. Compiled by Oliver E. Byrd, Ed.D., M.D., F.A.P.H.A., Professor of Health Education, Stanford University. Pp. 278. Price $5.50. Stanford University Press, Stanford, Calif., 1958.

INSECTICIDE RESISTANCE IN ARTHROPODS. By A. W. A. Brown, Ph.D., Biologist, Division of Environmental Sanitation. World Health Organization Monograph Series, No. 38. Pp. 240. Price $5.00. World Health Organization, Geneva, Switzerland, 1958. U.S. distributors, Columbia University Press, New York.

INTERMEDIATE HOSTS OF SCHISTOSOMA. African Biomphalaria and Bulinus. G. Mandahl-Barth, Danmarks Akvarium, Charlottenlund, Denmark. Pp. 132. Price $4.00 (paper). World Health Organization, Geneva, Switzerland, 1958.

INTERNATIONAL CLASSIFICATION OF DISEASES–1955 Revision. World Health Organization Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death. Vol. 1. (Also available in French and Spanish.) Pp. xli + 393. Price $6.75 (including Vol. 2, which is to be published later). World Health Organization, Geneva, Switzerland, 1957.

INTERNATIONAL NOMENCLATURE OF YAWS LESIONS. By C. J. Hackett, M.D., F.R.C.P., Medical Officer, Venereal Diseases and Treponematoses Section, World Health Organization, in co-operation with an International Group of Experts on Yaws and participants at the International Conference on Yaws Controls, Enugu, Nigeria, 1955. World Health Organization Monograph Series, No. 36. Pp. 104. Price $4.00 (plastic-bound). World Health Organization, Geneva, Switzerland, 1957. U.S. distributors, Columbia University Press, New York.

PENICILLIN. By Harold L. Hirsh, M.D., Medical Director, Hebrew Home for Aged, and Clinical Instructor of Medicine, Howard University College of Medicine, Washington, D.C.; and Lawrence E. Putnam, M.D., Assistant Clinical Professor of Medicine, George Washington University School of Medicine, Washington, D.C. Antibiotics Monographs, No. 9. Pp. 148, with 9 figures and 7 tables. Price $4.00 (cloth). Medical Encyclopedia, Inc., New York, 1958.

STREPTOMYCIN AND DIHYDROSTREPTOMYCIN. By Louis Weinstein, M.D., Ph.D., Professor of Medicine, Tufts University School of Medicine, Lecturer on Infectious Disease, Harvard Medical School, Chief, Infectious Disease Service, and Senior Physician, Medical Service, New England Center Hospital, Boston; and N. Joel Ehrenkranz, M.D., Assistant Professor of Medicine. University of Miami School of Medicine, Chief, Infectious Diseases Section, Jackson Memorial Hospital, Miami. Antibiotics Monographs, No. 10. Pp. 116, with 13 figures. Price $4.00 (cloth). Medical Encyclopedia, Inc., New York, 1958.

SURGICAL CONVALESCENCE. Annals of the New York Academy of Sciences, *Vol. 73, Art. 2.* Pp. 157, with figures and tables. Price $4.00 (paper). The Academy, New York, 1958.

TEEN-AGERS' GUIDE FOR LIVING. By Judson T. Landis, Ph.D., and Mary G. Landis. Price $3.95. Prentice-Hall, Inc., Englewood Cliffs, N.J., 1957.

This understanding volume deals, through a person-to-person discussion approach, with such concerns as dating, sex, future marriage, success in friendships, choosing the right vocations, brother and sisters, getting along with parents, achieving success in school, and managing problems and troublesome feelings. It is a good tool for anyone working with this age group.

TEXTBOOK OF GYNECOLOGY. Ed. 2 By John I. Brewer, M.D., Ph.D., Professor of Obstetrics and Gynecology, Northwestern University Medical School, and Chief of Gynecology and Obstetrics, Passavant Memorial Hospital, Chicago. Pp. 742, with 204 illustrations and 7 tables. Price $15.00. The Williams and Wilkins Company, Baltimore, 1958.

UNDERSTANDING YOUR PATIENT. Edited by Samuel Liebman, M.D., Medical Director, North Shore Hospital, Winnetka, Ill., and Clinical Assistant Professor of Psychiatry, University of Illinois College of Medicine; with 10 contributors. Pp. 170. Price $5.00. J. B. Lippincott Company, Philadelphia, 1957.

WORLD HEALTH ORGANIZATION TECHNICAL REPORT SERIES: No. 149. Joint FAO/WHO Expert Committee on Nutrition; No. 152. Ataractic and Hallucinogenic Drugs in Psychiatry; No. 154. Post-Graduate Training in the Public Health Aspects of Nuclear Energy; No. 155. Introduction of Radiation Medicine into the Undergraduate Medical Curriculum; No. 156. Expert Committee on Training of Health Personnel in Health Education of the Public; No. 157. Air Pollution; No. 158. Expert Committee on Medical Rehabilitation; No. 159. The Foreign Student and Post-Graduate Public Health Courses; No. 160. Expert Committee on Addiction-Producing Drugs; No. 161. Hospital Laboratory Services; No. 162. Expert Committee on Malaria; No. 163. Expert Committee on Auxiliary Dental Personnel; No. 164. Expert Committee on Health Statistics; No. 165. Expert Committee on Plague; No. 167. Public Health Nursing; No. 168. Hypertension and Coronary Heart Disease: Classification and Criteria for Epidemiological Studies; and No. 170. Expert Committee on Respiratory Virus Diseases. Price $0.30; No. 149, 152, 154, 158, 162, and 170, $0.60. World Health Organization, Geneva, Switzerland; No. 149-158, 1958; No. 159-170, 1959.

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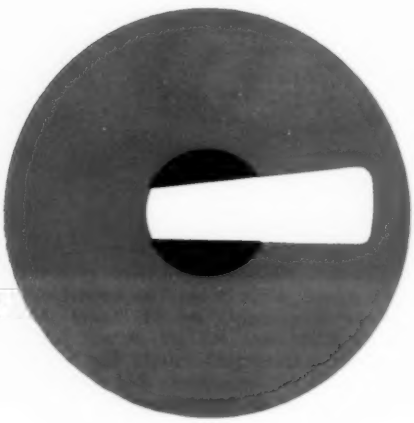

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President: Gertrude Felshin, M.D., 888 Park Ave., New York City.

Secretary: Mabel G. Silverberg, M.D., 2 W. 87th St., New York City 24.

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(Continued on page 82)

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Secretary: Virginia McCandless, M.D., 2355 Monroe, Dearborn.
Meetings held five times a year.

TWENTY-THREE, LOS ANGELES, CALIFORNIA

President: Elisabeth Larsson, M.D., 1700 Brooklyn Ave., Rm. 202, Los Angeles 33.
Secretary: Ethel M. Hamilton, M.D., 5740 York Blvd., Los Angeles 42.
Membership Chairman: Elizabeth Mason-Hohl, M.D., 1234 Vermont Ave., Hollywood.

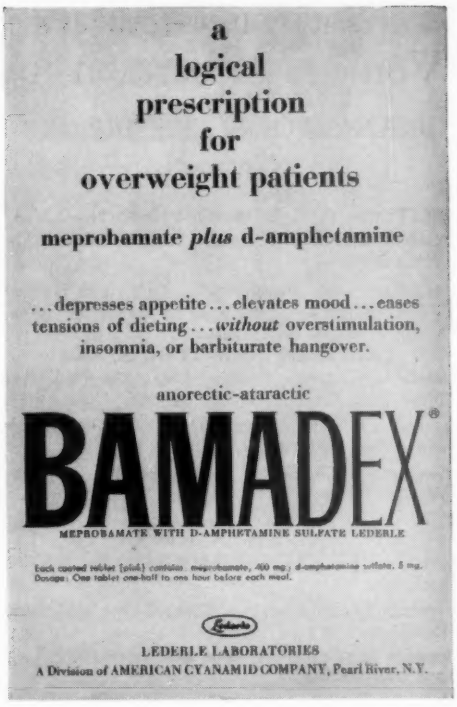
TWENTY-FOUR, KANSAS

President: Mary T. Glassen, M.D., Phillipsburg.
Secretary: Ruth P. Spiegel, M.D., Formosa.
Next meeting will be held on call.

TWENTY-FIVE, PHILADELPHIA, PENNSYLVANIA

President: Ann Catherine Arthurs, M.D., Watersmeet, Glen Mills.
Secretary: Margaret Gray Wood, M.D., 6386 Church Rd., Philadelphia.
Meetings held three times a year.

(Continued on page 89)



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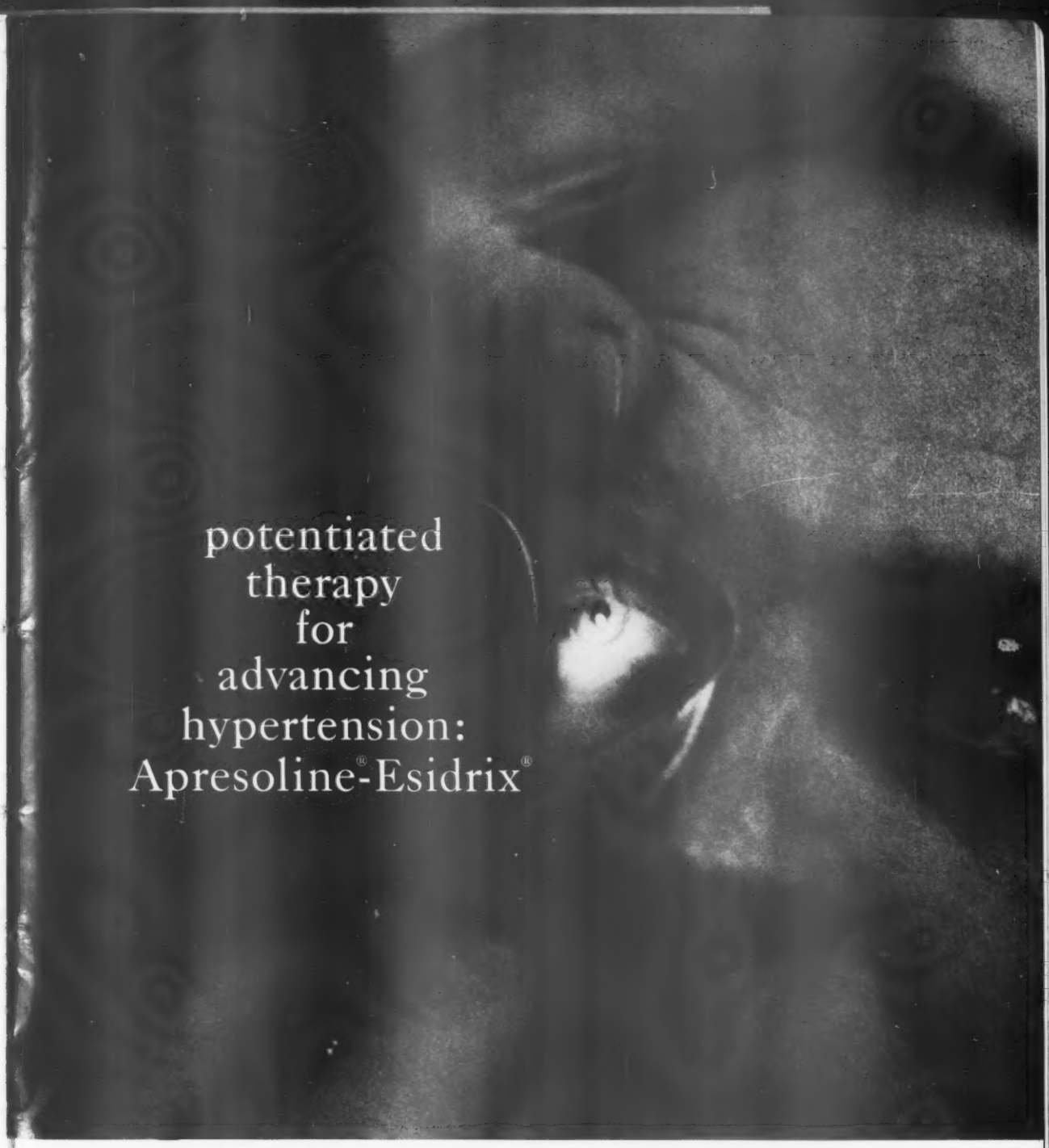

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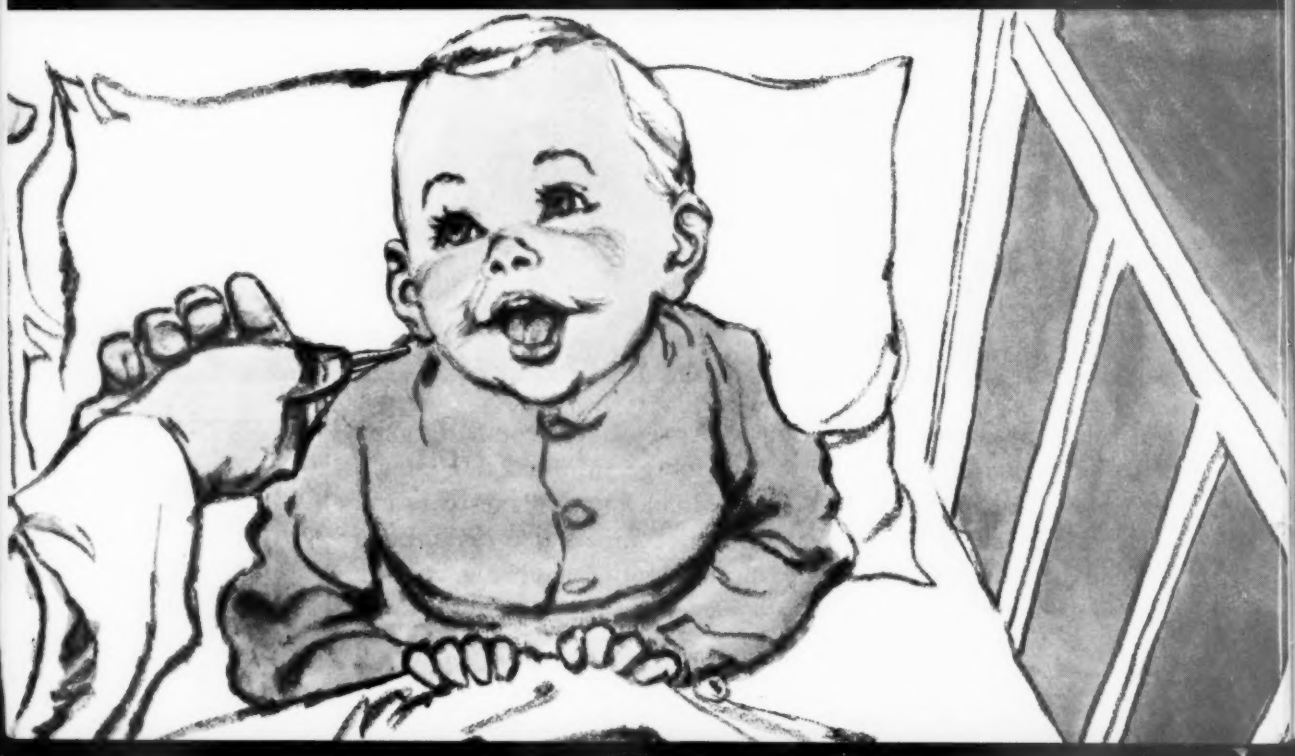
1. Cornely, D. A., and Ritter, J. A.: N-acetyl-p-aminophenol (Tylenol Elixir) as a Pediatric Antipyretic-Analgesic, J.A.M.A. *160*:1219 (Apr. 7) 1956.
2. Mintz, A. A.: Management of the Febrile Child, J. Ky. Acad. Gen. Pract. *5*:26 (Jan.) 1959.



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REFERENCES: 1. Editorial: J.M.A. Georgia **46**:433, 1957. 2. Colby, F. H.: Essential Urology, Baltimore, The Williams & Wilkins Co., 1953, p. 330.

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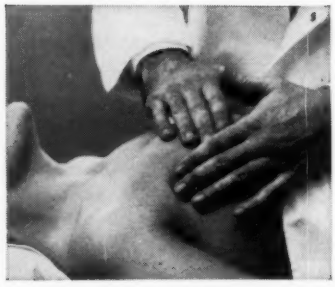

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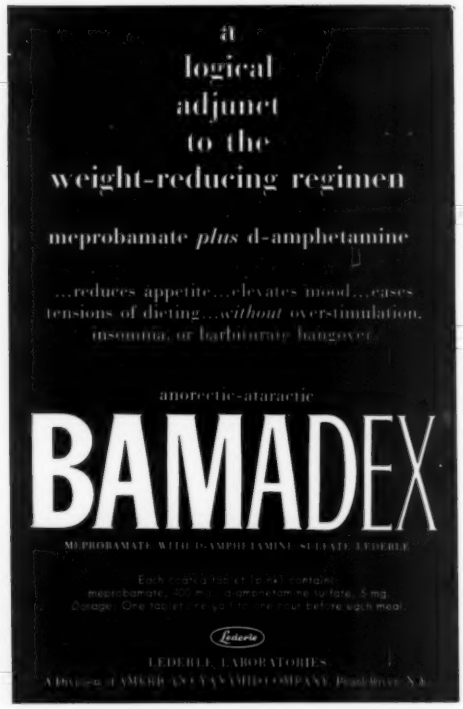

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Prigot, A.; Felix, A. J., and Mullins, S.: Paper presented at the Symposium on Antibacterial Therapy, Michigan and Wayne County Academies of General Practice, Detroit, September 12, 1959 (published Nov. 1959)

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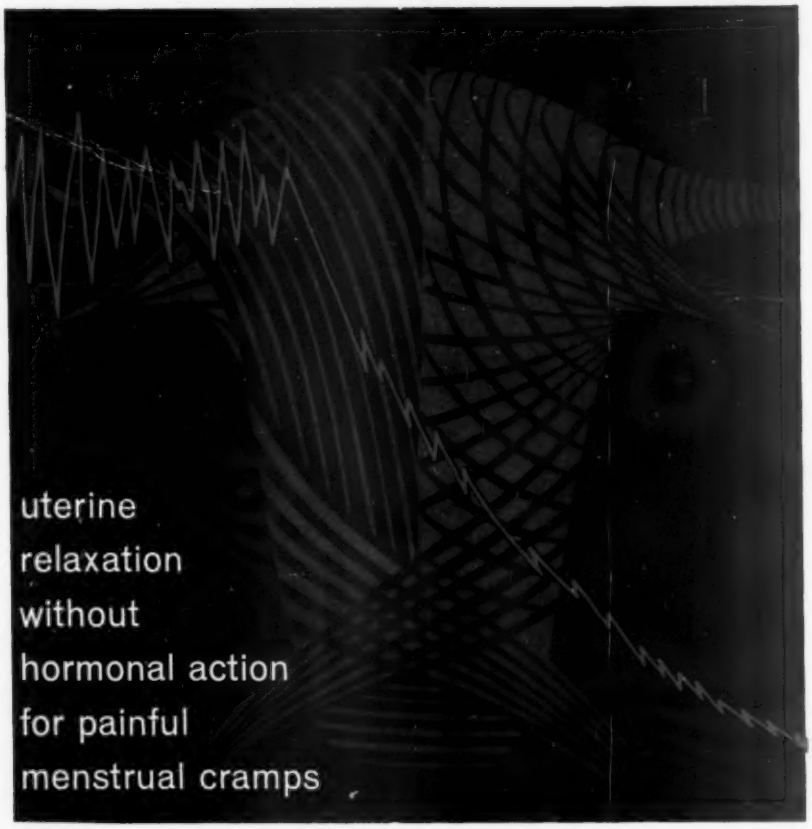

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